CHILD PSYCHOLOGY

I

DEVELOPMENT IN THE FIRST FOUR YEARS

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CHILD PSYCHOLOGY

Original Title: "Barnets Sjælelige Udvikling i de første fire Aar."
Translated from the Danish by G. G. BERRY

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Development in the First Four Years

BY

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WITH A PREFACE BY

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161898
17/5/11

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PREFACE

THE books here offered to the reader enrich child psychology with a series of fresh observations, arranged by a skilful hand according to various aspects of the subject. We are introduced to the whole wealth of the child's soul life; and at the same time we continually perceive the connection with general psychological laws. In addition, the experienced teacher and educator asserts himself; he not only draws his theoretical conclusions from manifestations of the soul in children, but indicates the pedagogic principles which they give occasion to inculcate.

Throughout we find expressed a lively conviction that it is of importance to allow the child's soul to develop itself involuntarily, to leave it to find out for itself, so far as is possible, how, in its actions and thoughts, it is to hold its own in face of difficulties and problems. Therefore no over-hasty explanations or instructions! The child must rather encounter an evasive attitude on the part of parents and educators, except when external pressure forces it into a manner of thinking or acting which it cannot correct of itself. Two objects are attained by such an attitude: experience is gained which gives information as to the child's special nature, and the child is practised in self-development. It is what Rousseau calls negative education that here comes by its rights. The Author

is even a little sceptical—rightly so in my opinion—with regard to the specially devised methods by which it is proposed to test children's powers, because in the application of these tests an indirect pressure is exerted, inimical to that unconstrained development of the soul life which temporarily ought to take the foremost place. The kindergarten, too, with its attempts to guide children's interests and ideas in definite directions, is an institution about which he has his doubts.

There is something highly refreshing in what we read about the "kindergarten child" (by which is meant the child of from three to seven years old). We gain a vivid impression of the wealth and activity which human nature exhibits when it unfolds itself under favourable conditions, and of the many possibilities which it includes. But for the teacher and the educator, the problem is so much the greater if he is so to order his instruction and his education as to bring to perfection, and if possible to surpass, what nature thus offers spontaneously—if, indeed, he is simply to avoid spoiling what has already unfolded itself.

I am convinced that the indefatigable observer and enthusiastic educationist who has written these books will find comprehending and interested readers in other languages besides that of his Homeland.

HARALD HØFFDING.

CARLSBERG, NEAR COPENHAGEN,
23*rd April* 1920.

INTRODUCTION

FOR education, both at home and at school, it is of the utmost importance to know child nature accurately, body as well as soul; otherwise it is impossible to educate in a truly rational way—except by a lucky accident.

But it is difficult to learn to know child nature, since it is continually in the act of becoming different. The child is not an adult on a small scale, but a quite different human being, the more different the younger it is.

If the child were a little adult all would be simple. It would only be necessary to investigate the life of the adult's soul in order to arrive at knowledge of such life in the child. And in earlier times this is just what was done. Children were regarded as small grown-up persons. This is shown in an amusing way by an illustration drawn by Chodowiecky in the eighteenth century. We see a schoolroom in which are a teacher and some children, all wearing wigs. The children are reduced editions of the teacher. And in accordance with this view, the education of that day was largely in error. The aim was to give children the interests of the adult as quickly as possible. The fact that this did not suit their age was not much taken to heart. That which did not go in by fair means was laid on with the rod. Learning, wide reading, was the ideal. The "able" child was the

one that could best acquire extensive knowledge. The "good" child was the one which behaved as if it had an adult's feelings and desires.

The first person who raised serious objections against this misunderstanding was Rousseau. He discovered the child in the child, and demanded that it should be allowed to live its own life. Children must have childhood: such was Rousseau's fundamental thought.

Rousseau, however, and his immediate successors, did not know children from comprehensive and thorough observations. Each built first and foremost on his own personal experiences; and more than one writer on education has, in the main, proceeded from such a thought as this: "I was educated so badly that nothing much has come of me; but had I been educated in the way which I am now going to describe, the result would have been different and much better." In addition to purely personal experience, the educational writers of that time had nothing to build on except scattered and casual observations of children. Consequently a large number of mistakes were mingled with the many excellent new points of view. Children are so different from each other. That which holds for one child does not apply to another. Inheritance and conditions of life give each a stamp of its own. Hence, in order that the typical and the universal may be brought into the light, it is necessary gradually to acquire accurate knowledge of many children. The more we know, the more certainly can the individual characteristics be separated from the universal traits, so that the general laws may be indicated.

For education, of course, it is not only the general

that is of interest. Each particular child can be the better educated the more thoroughly its special nature is known. For the individual educator, especially for parents, the study of the individual child is thus no less full of significance than the study of the general characteristics.

This study of children began as early as the close of the eighteenth century; in 1787, Tiedemann published his observations on the development of the faculties of the soul in children.[1] But this did not take matters very far, and no great improvement was made after Löbisch had written, in 1851, his *History of the Development of the Child's Soul*, and Sigismund, in 1856, *The Child and the World*.[2] Among other things, there was lacking a closer connection between psychology and physiology, but particularly a comprehensive, guiding principle to give significance to the separate observations and make it possible to compare them with other known phenomena—that is, to understand them. For this reason Kuszmaul's *Investigations on the Soul-life of the Newborn*,[3] which appeared in 1859, also failed to open an epoch.

In 1859, however, there was published Charles Darwin's book *On the Origin of Species*, and this not only aroused a lively interest in the development of plants and animals, but gave the impulse to a host of investigations on development both in the inanimate and the animate world. No scientific hypothesis has in recent times exercised so fruitful an

[1] Tiedemann, *Beobachtungen über die Entwicklung der Seelenfähigkeiten bei Kindern.* 1787.

[2] Löbisch, *Entwicklungsgeschichte der Seele des Kindes.* 1851. Sigismund, *Kind und Welt.* 1856.

[3] Kuszmaul, *Untersuchungen über das Seelenleben des neugeborenen Menschen.* 1859.

influence as the hypothesis of development; and its significance has not been least for the study of the soul life of man. Darwin himself wrote his book, *On the Expression of the Emotions in Man and Animals*; and in a little essay contributed to *Mind*[1] he communicated some of his observations on the development of children, particularly in their first year.

In the *Revue Philosophique*, Taine had previously published his observations on a child's development in language.[2] These, however, were still only advanced scouts heralding the later luxuriance of literature on children's soul life.

The true founder of modern Child Study is W. Preyer,[3] whose work, *The Child's Soul*, rests on careful observations and experiments. For three years he kept a diary of his son's development, and he conducted a large number of experiments for the purpose of elucidating the development of different faculties of the soul.

As the idea of development gradually extended among the sciences, child psychology became enriched with new points of view. Among other things, people learnt more and more to know the soul life of the animals, and the agreement which exists between stages in the child's development and stages in the development which psychic life has achieved in various types of animals; and this agreement has been specially elucidated by J. M. Baldwin in a book on *Mental Development in the*

[1] Ch. Darwin, "A Biographical Sketch of an Infant," *Mind*, Vol. II. 1877.

[2] Taine, "Note sur L'acquisition du langage chez les Enfants et dans L'Espèce humaine," *Revue Philosophique*, Nr. 1. 1876.

[3] W. Preyer, *Die Seele des Kindes*. 1881. 5th ed. 1908.

Child and the Race.[1] One is also often reminded of primitive races' manifestations of the life of the soul and of the prehistoric life of the civilised races, when one observes the development of the child's soul. Thus we have in this domain, just as in the case of purely physical development, three roughly parallel lines of development: (1) the development through progressive stages of civilisation—primitive, half civilised, and civilised peoples; (2) the corresponding development in the stages of civilisation within a particular civilised people; (3) individual development in children and adolescents. But great caution must be exercised in comparisons between children and adults—especially when they are of wholly different races. Phenomena of the same character need not always have quite the same causes. Water may be brought to boil either by an increase of temperature or by a diminution of atmospheric pressure.

Finally, during the last decades, child psychology has received a powerful impulse forward from experimental psychology, which rests on the close connection between the physiological and the psychological. To begin with, investigators no doubt confined themselves to adults; but as the problems were gradually cleared up, and the methods of investigation refined, the study was carried on to children, especially school-children; and by this means an extraordinarily rich fund of knowledge was acquired, which provides a far more solid basis for practical education than the speculative psychology of a former day and its uncritical transference to the soul life of children.

[1] Published 1895.

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CHILD PSYCHOLOGY

I

THE TECHNIQUE OF CHILD PSYCHOLOGY

THE foundation of inquiries into the soul life of children is, of course, ultimately the self-investigation of the adult human being. Each person individually learns to know the activities of the soul by immediate and direct apprehension. In reality, no one knows, by direct experience, any other part of existence than his own ego. That I see, hear, or taste only means that images are formed, that presentations of sound or taste arise, in me. To explain their occurrence I assume that there really is something which sends rays of light to my eyes, waves of sound to my ears, or influences to my organs of taste. We thus know our environment only because it occasions manifestations of soul life in ourselves. These manifestations are what we know directly; from them we infer the world around us.

For us, the souls of other men are also environment; for it is only from their actions, and from the sensations which these arouse in ourselves, that we infer their soul life. If they speak, we hear their words, and thereby learn that something is happening

in the speaker of the same nature as what happens in our own souls. If they write, and we read what has been written, their souls become known to us in a similar manner. It is always by *actions* that others reveal the life of their souls; their play of feature betrays it; their moods come to light through their use of histrionic means, and so forth. The chief condition for being able to understand the soul life of others is to be an attentive observer of one's own; and this self-observation is at the same time a condition for the understanding of what other observers have to communicate.

The fund of experience which can be acquired by self-observation and by the interpretation of other persons' actions is the foundation of the psychological information which may be obtained by experimental methods. If we did not know immediately, by self-observation, "emotions," and the conditions for their emergence, we could not show by experiment what changes in the circulation, and so on, may be produced by joy or fear. Even simple experiments, such, for example, as those by which we ascertain the facts about a person's colour-sense, could not be undertaken unless we could ourselves lay two similarly coloured plates by the side of each other in order to verify their similarity.

So long as psychological investigation deals with adults, the difficulties are comparatively easy to overcome. Even if adults differ greatly among themselves, they yet always have this in common, that they *are* adults; we can talk with them, make ourselves intelligible to them, initiate them into our intentions with regard to the experiments, and question them

when we are in doubt. With children, especially small children, the case is otherwise. The quite young cannot talk at all; and even the older children cannot give trustworthy explanations of their actions. If we ask them, they are influenced by the question and give a wrong answer. Besides, small children live in the unconscious, and do not possess the adult's well-practised means of expressing states of the soul. An infant smiles in its cradle—at least it appears to do so; but is it a twitch due to a griping in the stomach, or is it a real smile?

The investigation of children's souls is much in the same case with that of animals' souls. It is so extraordinarily difficult because the *interpretation* of what one observes is often so uncertain. When an animal acts "intelligently," as when, for example, a young pewit ducks in order not to be seen, that is not to be taken without further inquiry as meaning that it has reason or even sagacity. In the same way children may do much that looks highly intelligent without putting a grain of thought into the action. In Australia there is a kind of fowl, the Tallegalla, which allows its eggs to be hatched out by the heat of fermentation in large heaps of plants. When the chickens come out, they are fully developed, covered with feathers, and the first thing they do is to scrape with all their might to get out of the heap. Extremely "intelligent," to all appearance. But once when chickens of that species were allowed to hatch out in an incubator, it was observed that there, too, they set to work scraping with all their might, though there was nothing to scrape at. Thus the scraping of the chickens is not rational. It is an

innate characteristic, an "instinct" inherited from their ancestors; and without it they would be choked in the plant-heap before they had collected their wits and discovered that it was necessary for them to begin scraping. In the same way the actions of small children may very well bear the stamp of intelligence and yet not be due to intelligent deliberation; but one cannot question them, for even if they are capable of answering they cannot give trustworthy information.

Although one cannot question small children, it might be thought possible to obtain knowledge of their soul life by the aid of adults' recollections of their childhood. But this source is very meagre and highly untrustworthy. No one has the least memory at all of his first year; and that which one thinks one remembers of one's early childhood may very easily be self-deception. One may hear incidents *related* which in reality have been totally forgotten; afterwards one comes to imagine one remembers the incidents themselves.

That now and then trustworthy recollection does occur, without any possibility of self-deception, is quite certain; but this happens only when events make a very strong impression and are at the same time of such character that they are confided to no one. For my own part I have a recollection, dating from far back in my childhood (from what year I do not know and have no means of ascertaining), of stealing from a girl playmate. One day when I went to see her I found no one at home, but on a doorstep outside the house there lay an interesting potsherd, the bottom of a jug with the edge ground

smooth. This was more than I could resist; I picked it up and sneaked off. Fortunately, I must have had an uneasy conscience over the matter, or else I should not have remembered an experience of that kind; and it cannot have been fixed in my memory by my hearing it related, for I naturally kept silence about it.

If, then, we wish to make acquaintance with the soul life of children, there is no other safe procedure but to observe their behaviour carefully.

But in our observations we must, of course, be on our guard, that the child as a rule may not feel itself under notice. Even fairly big children cannot stand that. Once when I was noting down some question which eleven-year-old pupils asked during a lesson, one of the most ingenuous of them, after putting a question, asked: "Has that to be written down?" He thus betrayed the motive behind his question. In the same way a small child will readily come out of its shell if it feels itself the object of interested observation. The art lies just in taking a snapshot of the child's unfalsified ego. It is therefore well worth the trouble to find out how this ego is falsified.

Observations of children may be carried out in several different ways.

The most easily applicable method, and that which has the greatest importance for parents, is the thorough observation of the individual child. This form of child-study is naturally carried out by all parents on a small scale, but somewhat unconsciously, without the purpose of acquiring full knowledge of their children's soul-development, and without the definite aim of discovering rules for the rational

education of each individual child in accordance with its special nature. If any real results are to be obtained, one must *will* to hear and see, and must take trouble to do so; one must then write down one's observations as soon as possible. If, instead, one waits for an opportunity later on, errors inevitably creep in; a turn of speech is forgotten and replaced by an expression which the child never used, or one invents additions unintentionally and unconsciously. If one writes nothing at all, only a fraction of what is observed remains in the memory, and even that is untrustworthy.

For the purposes of literature, intended for the guidance of others, it is of course requisite that the observers should be trained, careful, and familiar both with general psychology and the special psychology of children. But teachers have here a rich field for valuable first-hand studies which might be of extraordinary importance for their daily work, and which also might advance knowledge of the child's development; and if a large number of observers were each to observe with the utmost accuracy the development of the children under their care, a large amount of material might be gradually collected from which the general laws of children's development might be deduced.

In addition to the observation of the individual child's development, it is also possible to investigate particular sides of development in a large number of children and to treat the information statistically. This mass-investigation, however, is of use chiefly in the case of bigger children, who have reached school age, or who go to school. For example, it has been

so investigated what colours children know when they begin to go to school, to what extent they are acquainted with the crow, the swallow, the rose, the thistle, and so on. In the case of quite small children, on the other hand, the method is difficult to apply, because an individual investigator has no facilities for observing a large number. Knowledge of the *first* years' development must therefore be acquired by thorough observations of comparatively few children.

A very important supplement to immediate observation is to be found, when opportunity presents itself, in experiment, which in recent years has acquired great importance for child psychology. But in order that the experiments may yield correct results, much psychological insight is necessary. Suppose, for example, we wish to ascertain what colours are known to a two-year-old child. One can procure a few pieces of coloured paper or wool-skeins and ask the child: What colour is this? and so forth. The child answers according to circumstances: Red, green, blue, and so on; and one notes how often the answer is right and how often wrong. Unfortunately, the trouble taken is in a measure wasted, because the experiment labours under a technical defect. One has experimented on more than one thing; and that is what one must not do. If the child answers wrongly, it is not certain that the error comes from the child not knowing green, that is, being unable to distinguish green from other colours. Another possible cause is that the child is not yet sure that this is the colour which is called green. If, on the other hand, one takes a large number of coloured pieces of paper, picks out a green,

blue, or red piece, and then asks the child to pick another piece of the same colour as the piece held in the hand, one is experimenting in a less objectionable manner. The child can no longer make mistakes because it does not know the names of the colours. Mistakes can now most probably occur for no other reason than that the child cannot identify two pieces of paper having the same colour. But even with this technically correct procedure mistakes might yet be made. For example, this experiment might be prolonged till the child was tired, or it might be entered upon in spite of the child's disinclination or lack of interest. The mistakes might then be due to fatigue and similar causes.

In the same way, all other experiments require in the person who conducts them an ability to disentangle the separate elements in what he undertakes, so that he is always investigating only one unknown thing at a time. In principle, experiment and casual observation are not distinct from each other. The difference lies solely in this, that the experimenter deliberately produces the situation and so arranges it that there is only one unknown element. Casual observation, on the other hand, presents itself spontaneously, and that which goes forward may be very complicated, full of unknowns.

II

THE PSYCHICAL AND THE PHYSICAL

THE very possibility of instituting psycho-physical experiments rests on the close relation of dependency which exists between the activities of the soul and the bodily or "physical" activities. Whatever view one may hold of the relation between "soul" and body, whether one is a materialist, an idealist, an adherent of the identity-hypothesis,[1] or of other hypotheses, one is obliged to admit the fact that the phenomena of the soul's life always correspond to manifestations of physical life in the nervous system. We *know* no life of the soul which is not linked to a nervous system in working order; and whenever anything happens in the soul of a person, it is always possible to detect signs of fatigue. There is absolutely no *sharp* line between the psychical and the physical, as ordinary language would lead one to suppose. "There is no boundary," says Meumann, "between bodily and mental work; all bodily work is at the same time mental . . .; all mental work is at the same time bodily, accompanied by parallel physical processes in the brain and (the other parts of) the nervous system. Consequently

[1] On this see H. Høffding, *Psykologi*; and K. Kroman, *Tænke- og Sjælelære.*

one can in many cases measure manifestations of the soul's life indirectly by means of the accompanying physical activities."

In general, so it has further been observed, the development of the nervous system and the development of the soul keep pace with each other. Every check to the development of the brain causes defective development of the soul life, and microcephalics[1] may stand on a level much beneath that of the most intelligent animals. But small children have a very slightly developed nervous system; and it is only gradually, as this system attains higher and higher stages of development, that the child becomes able to exhibit the corresponding manifestations of soul life.

The nervous system, as is well known, consists of nerves, brain, spinal marrow, and scattered nerve-ganglia; but the structural element is the *nerve-cell.* Like most other living animal-cells, it consists of protoplasm with a nucleus; but there proceed from the protoplasm of a nerve-cell a number of highly ramified threads, called *dendrites,* and a single long thread which is called the nerve-thread, or, more accurately, the *axial cylinder* of a nerve-thread. The dendrites connect the protoplasm of the different nerve-cells, in such a way that a large number of cells is collected into a co-operating aggregate. The axial cylinders of the nerve-threads, on the other hand, effect connection between the nerve-cells and the organs of sense, the glands, the muscles, and so on, or else they connect cell-aggregates in the brain or spinal marrow which lie at a

[1] That is, persons with too small a brain.

considerable distance from each other. As a rough analogy, one may compare the whole nervous system with the telephone network of a town. The power stations correspond to the cell-aggregates in the brain and spinal marrow; the telephone wires correspond to the nerve-threads. Just as the telephone wires underground are collected into cables, in which each separate wire is insulated from the others, so that the current may not be distributed over several wires, so the axial cylinders of the nerve-threads are also insulated and collected into cables. The axial cylinders are in fact enclosed in a casing, called the *medullary sheath*; and a "nerve" consists of a vast number of axial cylinders, each with its own, medullary sheath. If the medullary sheath is absent the nerve-thread cannot function, because the unknown "nerve-force" is not confined by insulation to a single axial cylinder. If the protoplasm of the nerve-cell is not fully formed, then for that reason it cannot function either. On the other hand, if the greater protoplasm mass and the nerve-thread are both fully formed, the cell can begin to function; but that is by no means the same thing as saying that its capacity to function is fully developed. The rule holds for nerve-cells as well as for other organs that only practice makes the master.

It is, however, not the case that every activity in the nerve-cells is accompanied by *higher* manifestations of the soul life which we are *conscious* of. Many of our organs, for example, the heart, work altogether "mechanically," as long as everything goes on as it should. Such activities are governed by special nerve-ganglia with their threads. Many other move-

ments, for example, those of the iris when the pupil is contracted or expanded, also proceed mechanically, but as a consequence of an external influence. Other actions are quite certainly conscious, but only in a very slight degree; and the power of executing them is inborn, so that they quickly become automatic. This is the case, for example, with the infant's act of sucking. But other actions require long practice and persistent thought, even after great facility has been acquired, for example, the solving of mathematical problems. The manifestations of the soul life are thus of many different kinds.

Actions are divided according to their causes and peculiarities into several groups.

The simplest are the spontaneous. They are made known by movements in which external influence plays practically no part, but which arise through discharge of the energy accumulated in the nerve-centres as a result of abundant blood-supply and vigorous nutrition.[1] All such movements take place without thought, for example, a baby's kicking.

Another kind of unconscious manifestations of soul life are the *reflexes*. They have their cause in an external influence. For example, one blinks purely by reflex action, without consideration, if some one thrusts a clenched fist quickly in front of one's eyes.

A third kind of lower, involuntary manifestations of soul life are the *instincts*; but instinctive actions presuppose "probably always a strong want"; and it is assumed that it arouses a highly pleasurable feeling to give way to the want and satisfy it. Besides, the power

[1] H. Høffding, *Psykologi*, 6th ed., p. 119.

of performing instinctive actions is inherited, even if practice can perfect the execution; for an instinctive action can be performed the first time that it is serviceable to life. On the other hand, it is a common feature in reflexes and instinctive acts that both require an *external* influence. The chicken, for example, must see the grains before its innate instinct to eat grains can manifest itself; but as soon as the chicken is hatched it can both see grains and eat them.

From these manifestations of soul life, all of which come under the head of involuntary movements, there are transitions to the higher and the highest manifestations, which proceed with full consciousness. In the *desires*, that which leads to action is the *idea* of something. The thirsty man imagines something to drink and afterwards seeks to procure it for himself. "Conscious Life reaches its highest development where *deliberation* is possible in the interval between the impression (the incentive) and the action, without the loss of the power of energetic decision, and where at the same time ideas and feelings can arise and be preserved in a certain *independence* of the practical needs," says Høffding in his *Psykologi*.

The lower manifestations of soul life, the spontaneous, the reflexive, the instinctive, have the very greatest importance for our life; but they are not much thought about because they are so ordinary and proceed unnoticed or even all but imperceptibly. It is not till irregularity enters into the activities that attention is drawn; and when the case becomes serious one goes to the doctor.

Who gives a thought to the fact that the pupil of

the eye is expanded or contracted quite mechanically, according as the intensity of the light is diminished or increased? But if anything went wrong with the pupil's changes, one would soon be on the way to the doctor. The involuntary manifestations of soul life are among the activities which condition our life in the very highest degree. They are therefore innate when they are specially indispensable: otherwise, they are acquired as "habits" and confirmed by exercise. These acquired reflexes also as a rule attract but little attention, since they act automatically once practice has produced facility. But during the process of acquisition the case is otherwise. A little child is a long time in learning to dress itself; but the adult can meditate on a new form of calculating machine while he is buttoning his coat. Practice in reading, writing, violin-playing, and so on gives a great deal of trouble; but when one is efficient the tribulations are forgotten. As a rule the most difficult and tedious to acquire are the reflexes or habits which do not depend on inborn, instinctive inclinations, but, on the contrary, require set purpose and will, or even compulsion. A child which learns to play an instrument without pleasure, under parental compulsion, is extraordinarily long in acquiring the dexterity which is necessary before the movements can proceed as pure reflexes.

Simultaneously with the provocation of reflex acts by external influences there are also probably aroused, at any rate in many cases, vague feelings of pleasure or displeasure, comfort or discomfort. This is perhaps not at all the case with such reflexes as the change in the pupil, but on the other hand it is pretty

certainly so with such reflexes as the heart-beat, respiration, the excreting activity of the glands which supply the digestive juices; for when all is well with these and similar vital activities one has a feeling of well-being, while disturbance produces discomfort or even pain. There is thus no gulf between the unconscious manifestations of soul life and the conscious life proper. It is difficult or even impossible to draw a determinate boundary line; but the child begins its individual soul life with the very simplest spontaneous actions and reflexes, and rises by gradual steps to higher and higher forms of soul life. To follow this development is the task of child psychology; the results obtained can then be applied in many ways—not least in the service of education.

III

THE UNBORN AND THE NEWBORN

BEFORE the child is born, its nervous system passes through a whole series of stages; and when the child is born its nervous system is far from complete development. But has it been able to function before birth, and has the child possibly, while still a fœtus, manifestations of conscious soul life?

It is clear that the nervous system of the fœtus cannot act with any vigour, because it cannot receive much in the way of impressions from its "environment," in which is included the maternal organism. Neither light nor sound nor impressions of taste or smell can reach the fœtal sense-organs, and the temperature as a rule is uniform, so that in general neither cold nor heat can influence it. On the other hand, it may on occasion be stimulated by pressure, when the mother moves, or by a casual change of temperature; and an internal stimulus is conceivable, for example, when the fœtus is "hungry," or when for one reason or another it receives an unusually large supply of blood charged with nutriment or oxygen. Thus it does not pass its life altogether without influences acting upon it. And indeed it does send out signs of life. In the fifth month the

mother begins to notice "quickening," that is, movements; and these increase in frequency and force till birth. But are they exclusively spontaneous movements and reflexes; or is it conceivable that there also exists conscious life, perceptions, and feelings of pleasure or discomfort?

So long as the fœtus is quite young, it is in a high degree improbable that any manifestation of conscious life occurs at all; for the brain is far from complete development. In the fifth month, on the other hand, the spinal nerves are already provided with medullary sheaths; and it is just in this month that movements begin to be *noticed*. But it is, of course, quite possible that before this time it may have performed imperceptible movements. All these earliest movements are, however, either entirely "spontaneous," caused by an internal stimulus proceeding from changes in the blood supply, or else they are simple reflexes caused by an external stimulus in the form of slight pressure. As the fœtal brain becomes gradually more developed and a part of its nerve-threads acquires medullary sheaths, it is on the other hand conceivable that manifestations of conscious life begin to dawn, but in a grey fog, unclear, without the sharp distinctness found in the conscious life of the adult. Perceptions, feelings, and elements of will form a grey-on-grey, a weak initial note out of which a rich diversity may unfold itself.

If there is conscious life before birth, it is thus in any case very little developed; but this does not exclude the possibility that the fœtal movements may have a more than momentary significance. It may quite well be that they are the first practisings of

movements important for life. Life, in fact, does not begin with birth. It begins as soon as the ovum has been fertilised; it is thus not reasonable to suppose that the child does not begin to practise its life-activities till after birth; it is far more probable that it sets to work fairly early in the fœtal condition and continues with increasing vigour till on towards birth. However, the fœtus does not achieve great progress in its practice of spontaneous movements and reflexes. The young of animals, on the other hand, often come into the world with a number of well-developed spontaneous movements, reflexes, and instincts which put them in a position to fend for themselves. Chickens can straight away run about and find their food, and ducklings are able to swim as soon as they have left the egg. The young of many animals are, however, relatively less developed—for example, the newly hatched pigeon; but when the parents have looked after them for a short time they are practically in the finished state, that is, able to perform instinctively the actions necessary for the maintenance of life. Even if the instincts can be perfected by education and practice, they are virtually complete when they make their appearance. By way of compensation, every type of animal has relatively few instincts. When these do not avail, the animal is fairly helpless. The newborn human being is thus only in appearance behind the young of animals; in reality, it is heaven-high above them. It has time before it, and some one to tend it, while powers are developed far more manifold and valuable than strongly marked instincts. Man is distinguished from all other animals precisely by the long time

required before he is in a position to hold his own without help in the struggle for the good things of life. This is especially true of highly cultured peoples. The more difficult the life-work, the longer, as a rule, is the necessary preparation. Among primitive folk the young are received into the ranks of the adults on "confirmation." In a civilised community the confirmed adolescent is still a greenhorn, an apprentice who is far from being regarded as adult; and, for the callings which make large demand on those who pursue them, training continues till far on in life. Higher culture is in part synonymous with a prolongation of childhood and youth. The doctor is not allowed to practise till after an apprenticeship lasting till towards the close of the twenties. The researcher is at bottom an apprentice throughout life, still young in his old age, and unable to subsist did not society support him during this youth.

The real, decisive advantage which man has over the animals is that he can continue to renew himself throughout his whole life. The animals are so one-sided or few-sided; they are specialised for particular types of activity, and excel in only a few directions. Their young are therefore capable of development only within narrow limits. The foal may become a sprinter, the young falcon a stunt-flyer, and so on. The human child may become anything whatever, stunt-flyer and sprinter included.

This all-sidedness of man is not, however, responsible for the helpless condition in which the child comes into the world; nor can the explanation be found in the fact that so long a time is required for the high development which the child

has to attain. It is other causes which determine the relative degrees of development in the newborn. The newborn foal is, for example, much farther forward in the path of development than the newborn kitten; but one is not therefore to infer that an Arab horse is much less intelligent than an Angora cat. The pigeon's young are extremely helpless when they leave the shell, while the young falcon is from the first covered with down and can eat the food which his parents lay in the nest; but is the pigeon far more intelligent than the falcon or than the hen whose new-hatched young can at once find food for themselves? The animals most nearly related to man also bring into the world young which are almost as helpless as the newborn human child. If one compares the different races of mankind, one comes again to the result that it cannot be the level of culture attained by the adult which determines the degree of development of the newborn; for in that case the newborn of primitive peoples would be in advance of those of the more highly civilised races, while in fact they are not. On the other hand, the time required by the individual to attain maturity for his life-work depends on the level of mental development.

Time, however, is not the only thing that counts; there is, in addition, practice, preparation for the work of life—that is, education. Among primitive peoples the child can relatively soon maintain life by his own exertions, because the modes of making a living are so simple. Australian negro women support themselves as "collectors," that is, they take everything eatable wherever they find it; this is a craft which

children can soon learn. The construction of a modern motor-ship requires not only long-continued practice but also careful preparation. With increasing culture there is an increase in the importance of education.

Man's strength thus lies not in being relatively complete at birth, but he is born a pitiful creature precisely because he is incomplete and full of possibilities.

At birth most children utter a cry; it is their greeting to life. But they cry dry-eyed; it is not till after the passage of some months that tears appear in the infant's eyes. In the case of my second child, S., I saw tears for the first time when she was four months old.

But why does the child cry after having been born? Hegel thought, a trifle too speculatively, it may be conjectured, that the cry of the newborn is a revelation of its higher nature. The child proclaims by its cry that it is convinced of its right to demand satisfaction of its needs from the world around it—in other words, that the world is not independent in its relation to man, and therefore just as little in its relation to the child. Presumably the child was born a Hegelian. Michelet assumed that the cry of the newborn is due to the terror of the soul on finding itself subject to nature. Even Kant took the infant's cry too seriously, and believed its origin to be that the newborn child wishes to move but cannot, and therefore feels itself fettered and robbed of its freedom.

But why then does the newborn infant cry? This is simply impossible to explain satisfactorily. Some think that the infant cries by a merely reflex action,

because it is cooled after leaving the maternal organism. After the child has been swathed, the crying as a rule ceases. It is, however, possible that owing to the interruption of the placental circulation, and to the birth itself, a strong craving for oxygen arises, which causes the crying. Or perhaps the cry is caused by pain due to the process of birth. Lastly, several causes may co-operate; but the cry of the newborn is not the expression of any higher life of the soul.

As a rule the newborn infant falls asleep as soon as it has received proper attentions; and during the first days it sleeps almost uninterruptedly. It gets all it wants sleeping. It is only when it needs feeding or cleansing that it is wakeful, and this is as much as is healthy for it.

As soon as the child is awake it begins to whimper or cry; but there is a difference in the cry according as the child has soiled itself or is hungry. Hunger is also revealed by movements of the lips and tongue, similar to the act of sucking, but these are naturally quite unconscious, purely physiological. Different children, moreover, do not cry in the same way. Most of them say a—a or æ—æ (the vowels in *far* and *care*), but it may happen that a child cries la—la. The cry of some is thin and whimpering, almost a pleasure to listen to, whilst others howl at the top of their voices on even a slight occasion. The cry of the very first day already reveals peculiarities of the child's nature. My two children, both of them girls, cried altogether differently from their first day, the one very gently, the other in a highly irritating and exacting manner.

The newborn child, however, can neither understand what is the matter with it nor consciously disclose its wishes. It is not, in fact, possessed of a soul in the same sense as the adult; it has only the germs of a human soul life. The brain is far from fully developed. It has indeed at birth the same external form as the adult brain; but most of the nerve-threads of the cerebrum lack medullary sheaths, and are therefore unable to function. In a manner the newborn child is physiologically almost without a cerebrum, and therefore incapable of manifesting the higher forms of soul life. The only parts fully developed are those governing the activities most necessary to life; and consequently what we observe in the newborn child is almost exclusively spontaneous movements and reflexes, particularly those governed by the spinal cord; while movements depending on experience and governed by the brain do not appear till later.

With regard to the senses, investigations on the structure of the nervous system and observations of newborn children agree in indicating that the newborn child can immediately *feel*—that is, can perceive pressure, heat, cold, and so on; also that it can taste and very soon smell. On the other hand, the power of vision is undeveloped; the child can only distinguish between light and darkness, but cannot really see. The newborn child is also, practically speaking, totally deaf.

It is the senses most necessary to life which can be exercised at once, although very imperfectly. The child can and must taste the milk and defend itself from dangerous substances. And so it reacts in the

same way as adults to bitter, sour, sweet, or salt substances, placed experimentally on its tongue; and it behaves normally towards malodorous substances. On the other hand, the great majority of investigators are agreed that even violent noise in the immediate neighbourhood of the newborn is quite unheard. But sight and hearing need not enter upon their functions immediately because of the care which the mother can give to the child. The newborn is a helpless little being without the power to observe or to exercise *willed* movements. It is certainly stimulated by its surroundings, but all that is aroused is perceptions and dim feelings of pleasure or displeasure. Most frequently, no doubt, the feelings are bound up with perceptions. The movements executed by the newborn child are partly spontaneous or reflex, independent of the psychic elements; partly they are instinctive movements, an inheritance without which life would be impossible. Only a few movements reveal what we may term a primitive impulse towards consciousness—a few simple, undifferentiated perceptions and vague feelings of pleasure and displeasure.

IV

INHERITANCE AND EXTERNAL INFLUENCES

THE development upon which the newborn child enters is determined by two factors: inheritance and the influence of environment.

By inheritance from its ancestors a child receives at the moment of fecundation the potentialities of powers which according to circumstances may either be unfolded into actualities or slumber concealed to be possibly handed on to a later generation. From recent years' investigations on inheritance in plants and animals with which it is permissible to experiment, it results that the parental organisms inherit according to definite laws the potentialities of qualities in their offspring; and special investigations dealing with man indicate that the same laws also hold good for the human species, as indeed one might have anticipated.[1] In the form of potentiality there are inherited physical qualities, diseases and predisposition to diseases, as also mental characteristics. For example, there are inherited the colour of the eyes, harelip, cleft palate, dwarfishness, gigantic stature, drooping eyelids, colour-blindness, deaf and dumbness, baldness, smallness of brain and skull, hæmo-

[1] For further detail on this see Vilhelm Rasmussen, *Menneskets Udvikling*.

philia, diabetes, weakness or abnormality of the nervous system, shortness of life, mental disease, criminal propensities, lack of moral sense. Other extremely serious mental defects are hereditary in at least particular families, while, conversely, high intellectual gifts and musical talent are hereditary in other families.

The inheritance of potentialities from parents, and through them from remoter ancestors, is the fixed element in the new individual's career, but external conditions co-operate to a high degree in determining the realisation of the potentialities.

Even during pregnancy external conditions begin to make their influence felt, especially by the way in which the fœtus receives nourishment, but also in other ways. From the moment of fecundation to that of birth the new human being is dependent on the mother's organism. She supplies it with nourishment, and is capable of infecting it, for example, with syphilis ; she can do it harm by over-exertion, dissipation, and other abnormal modes of life. The birth of healthy offspring is therefore to a high degree a social question ; for it is only when every mother lives under conditions of security and leads a truly rational life, that the good potentialities inherited by her child can be unfolded to the best extent possible. It has been established, for example, that the employment of mothers in work with poisonous substances, like lead, is highly injurious to their children ; and severe labour, especially factory labour in unhealthy rooms, exercises a very unfortunate influence on the development of the unborn child. Again, it is better to live out in the country than in large towns. It is

also, of course, a matter of great importance how long a time intervenes between successive births, especially with regard to the child's viability. A child, so far as can be seen, has so much the greater chance of living out its first year the longer the time that has elapsed since the preceding birth.

After birth, food has more importance than anything else for the child's physical and mental thriving. No artificial food can replace breast milk. The mortality of infants decreases in the same proportion as the period of nursing increases. Families which feed their infants artificially lose on the average five times as many children in their first year as families in which the children are nursed for a sufficient length of time. But the importance of nursing can also be demonstrated later on in life. An examination of 6744 men of twenty from Thuringia and Saxony showed that the percentage fit for military service was the greater the longer they had been nursed as infants. Nursing has also a demonstrable importance for the mind. At Dresden the character "very good" was, among 1075 children, received to a larger percentage by those who had been nursed for a long period; conversely, the character "unsatisfactory" or "bad" was relatively more frequent the shorter the period of nursing had been. Of course the results of such statistical investigations cannot be applied to each individual. The important thing, first and foremost, is the nature of the inherited potentialities, and, in addition, the character of the artificial food. But, other things being equal, it is found that the initial potentialities are best unfolded when the child is nursed for the normal period.

After weaning, external conditions, particularly food, have still an extraordinarily great importance for a child's development. Comprehensive investigations on school-children have shown among other things that a child's "ability," more correctly, its capacity for work, depends more on the circumstances of the parents than on their nationality: that is, underfed children are incapable of fully developing their inborn potentialities. Within one and the same community the general rule holds that the physically well-developed children surpass the less well-developed in the matter of mental work. It is of importance, among other things, whether children grow up in the country or in large towns; for village children are on the average both taller and of better chest-measurement than town children of the same age-class.

Each of the two factors named as determining an individual's development, inheritance and conditions of life, thus exercises an influence of extraordinary significance.

In the first period of the infant's life, however, there is not so much to be noticed in the way of individual characteristics. Although infants may differ greatly in particular points, even when they are brothers or sisters, or indeed twins, the main lines of development are the same for all children. If they are normal, they all, for example, begin some fine day to babble or to walk. On the other hand, the time at which each power becomes manifest may vary in a fairly high degree. In the main, however, the infant's development follows a general rule; individual peculiarities make their appearance later.

In the first period after birth the child is almost

exclusively occupied in developing itself physically. Cleansing and feeding take up nearly all the time that the child is awake. All the same, significant progress does occur, not least by aid of the child's two chief wants, cleanliness and food. The way to the child's heart lies through its stomach. The infant smiles first at its mother, who feeds and tends it; and it shows friendliness to other members of its circle in accordance with the services which they render to it. But it grows in ability to show sympathy, and is thus already on the way towards becoming a social being.

It is, however, difficult to catch the beginnings of the individual attributes of the soul. That which commonly is taken as the *first* sign of sympathy, the *first* sign of intelligence, and so on, is oftenest merely the first *observed* exercise of a power which has long ago begun to develop. To detect indications of the higher activities of the soul is really a very difficult task, success in which is many a time due to a pure stroke of luck.

Most of the infant's activity consists of spontaneous or reflex movements or expressions of instinct. In the waking state, as is well known, the infant lies and kicks, especially when it is being put to rights; but this kicking is purely spontaneous and quite involuntary, although it forms a very important piece of gymnastics. Nor is the infant's ability to take food, when it has sufficiently rested after the birth, the result of any higher activity of the soul, but depends on a innate instinct. The child does not, however, quite at first understand how to suck, but needs a trifle of practice; and it is a long while before it can find the nipple for itself when laid to

the breast. The human infant is not indeed quite so helpless as the young of the Marsupialia, which have the milk pumped into their mouths by contractions of the teats; but being unable to find the nipple for itself it must be placed where its mouth can grasp it. The infant can only open its mouth; the mother must direct it to the right place. When the newborn child becomes hungry it begins to suck while still in the cradle, before it is taken up, as I have noticed in the case of my second child, S.; and when the nurse lifted her to lay her to the breast she began to suck at the nurse's hand. The infant takes its food blindly.

V

EXERCISE OF THE SENSE-ORGANS

THE capacities which the child gradually comes to possess are in the main acquired by the aid of the senses. These are indeed the approaches to the very highest activities of the soul.

As already stated, the earliest sense to be developed is that of *taste*. It is, indeed, a necessary sense, in order that the child may satisfy its craving for food in a normal way; but the infant can not only perceive the pleasant taste of the milk; it can also taste sweet, sour, bitter, and salt; and it reacts to these tastes in the same way as the adult. The infant has not, however, a delicately perceptive sense of taste; and this sense is, on the whole, an untrustworthy one, which by habituation can easily be brought to act in opposition to its original nature. There are hardly any, for example, who do not find beer unpalatable the first time; and yet an extremely large number of people accustom themselves to find great enjoyment in it. Strong seasonings are also at the outset unpleasant to the taste; and yet there are many who make their stomachs ill with them. If we wish to preserve normal taste in children and to make sure of their possessing a fair degree of delicacy in this sense, we must save them from foods and drinks which are

in any high degree contrary to nature, such as strongly seasoned food, alcoholic drinks, coffee, and so on. Even tea is tolerated only when it is very diluted and mingled with milk; and children are best without it. A child which has begun to eat grown-up food more often than not prefers pure water to other beverages, apart from milk.

For the infant, however, the sense of taste has a peculiar importance, which it gradually loses. As soon as the child begins to grasp things within its reach it tastes everything it can get hold of. This trick of putting things in the mouth is particularly common when the child is about half a year old; from then on everything possible finds its way there. The child feels things with its lips and tongue and tastes the world around it, learning at the same time many other qualities of the things. It perceives whether they are hard or soft, rough or smooth, sharp-edged or rounded, and so on. The lips and tongue are in a manner the child's finger-tips.

The mouth, especially the tongue, is also the organ with which the child begins to study the parts of its own body. At a very early stage children put one or more fingers in the mouth to suck them; and when they get bigger they begin to taste other parts of themselves, to the extent possible. It cannot be exclusively for the purpose of satisfying hunger; for a child puts its toes in its mouth immediately after being fed to satiety. What is going on is probably an investigation of the strange unknown body, the foot, just as in the case of a rattle which is investigated by the tongue.

The sense of taste, moreover, seldom acts alone, but

most frequently along with the sense of *smell*, partly also with that of *sight*. If one bandages the eyes and plugs the nostrils one is very often incapable of tasting rightly. That which enters the mouth has a taste quite different from what is usual to it. For the purpose of determining the palatableness of foods, the sense of smell is thus of great importance in addition to the sense of taste proper. As the sense of smell requires the entrance of air into the nose so as to reach the olfactory nerves, it cannot begin to act till after birth, when the child has begun to draw breath; but then the child can at once smell strong odours. At the outset, however, the sense of smell has very little delicacy of perception in it; and it is somewhat slow in acquiring keenness. My eldest daughter, R., who is three and a half years old, and who is very eager to pick flowers and talk about them, has, for example, never yet said that roses or other flowers smell nice, though we often walk in a churchyard where there is a magnificent display of roses with strong perfume. But if she takes a single flower in her hand, it often happens that she smells at it and says: "How lovely it smells!" On the whole, no very high degree of development is attained by the sense of smell in man, particularly in the civilised races. The wild mammal scents danger or prey from far; the dog tracks his master in the midst of a dense crowd, although there is nothing to smell but an insignificant residue of the infinitesimal quantity of air from his boots that remains in his footprints. No man can perceive such a smell as that; but still the Australian can track game by smelling at the leaves over which it has passed, and the Indian can tell by

the smell of a leather jacket what kind of animal the skin has come from. The sense of smell possessed by civilised man is, in comparison, extremely dull and without great importance for the conduct of life.

It may be observed that neither the sense of taste nor that of smell is of much value for the development of the higher faculties of the soul. Even the man who most appreciates the pleasures of the table must admit that it is the stomach which is gratified. Flights of fancy and poetical moods are inspired neither by delicate food nor by exquisite perfumes.

The senses which were formerly lumped into one under the name of the "sense of touch," or the fifth sense, have a much greater share in the development of the highest functions of the soul, and they are, of course, extremely important for our physical life. The child begins early to accumulate experience on a large scale by "touching" itself forward. In a later age, however, the "touch" senses are displaced by others.

It is a little doubtful how many special "touch" senses can be distinguished from each other. In the skin there are at least four different ones, namely, the senses of pressure, heat, cold, and pricking. Dispersed in the body are sense nerves which report to the central nervous system how things are with the individual organs and the body as a whole. When all is as it should be, one perceives merely a low-keyed pleasure; on the other hand, if anything is wrong one has a vivid perception of it. Pain is loud-voiced.

Finally, we have in the vestibule of the inner ear a special sense which tells us the position of the body, further, a sense by which we perceive the body's movement, another in the semicircular canals of the

inner ear by which we perceive changes of velocity, one for perceiving the movements of the limbs and the tension of the muscles, and, last of all, senses in the service of digestion, as the perception of hunger, thirst, satiation, and other senses.

In the infant, so far as is known, the various "touch" senses are in working order straight away, except, presumably, those senses which give information on the position and movement of the body or on changes in velocity; these cannot enter on their functions until the child begins to move itself forward in space.

In the child's study of the world around it the touch senses, especially those of the lips and finger-tips, play the very greatest part. At the outset, the sense of taste is no doubt also a great source of instruction; but as the child gradually gets bigger it contents itself more and more with feeling things with its fingers; and even while it continues to "taste" everything it also comes to feel at all within its reach. The child learns to grasp the world by first grabbing at it. At the age of three months S. discovered her hands, lay and stared at them, and seized the one with the other, thus inevitably gaining a vivid perception of the fact that they were there. From the age of about half a year the child is especially busy in getting experience by touch; and a youngster of this age will lie and study physics at first hand. Without knowing the names of the various qualities, it learns, for example, that something is *soft* (wool, cotton, linen, a down quilt, parts of the body, etc.), *hard* and at the same time smooth (silver spoon, watch, chain, key, bottle, etc.), *hard* and *rough* (rattle,

cradle, etc.), *round* (bottle, ball, etc.), *sharp-edged* (the separate ribs in the cradle, etc.), and other qualities. The child also learns *resistance* (*e.g.* when the watch cannot be brought to the mouth) and *distance*, which to begin with is no doubt apprehended as the difference between within reach and out of reach. But the child, while still quite small, most often grasps only at what is within its reach; it is not till a later age that it tries to get hold of distant objects, as, for example, the moon.

By its eager sucking and feeling at things the infant reveals its extraordinary craving for activity; and, without it being generally noticed, it lays up at an early age a large sum of knowledge which later on is among other things the basis of its understanding and acquisition of language. The child literally goes on voyages of discovery with its fingers. One day when I had my eldest daughter R. on my lap, she, being then about seven and three-quarters months old, found my nose and mouth, which were thoroughly felt. Two days later she found my ears, which were investigated in all their convolutions; and afterwards she discovered her own ears, which she felt at for a long time. She was, however, specially interested in my eyes, which she often prodded at, and one day she took hold of one of my eyelids in order to open it and get sight of my eye; unfortunately she had to be stopped from carrying on the examination more closely.

It is clear that the strong inborn craving to investigate existence by feeling must be indulged as much as possible. Of course one must prevent the child from feeling dangerous things—for example,

knives and scissors, or fragile things which it might destroy; otherwise one should not lightly prevent the child's impulse towards research from finding its outlet. On the other hand, it is probably not right to do anything for the direct purpose of inducing the infant to work; for its brain cannot endure much exertion and quickly becomes tired. The initiative must remain with the child. The task of the educator is merely to provide against injury, and to make it possible for the child to get something between its fingers. The child, of course, always has its own body, and it learns to know the different parts of it, especially by feeling. When R. was big enough to talk, she felt one day first one and then the other of her legs, and said: "R.'s leg. R.'s other leg."

The infant's grasping at things is, however, quite casual, without any special effort of attention, and without any consciousness of purpose. The fingers travel from the one thing to the other, and a trifle diverts the child's attention in a moment. But with growing mental development the casual grasping is modified; it becomes more and more attentive and purposeful. Figuratively speaking, it is a main task in the art of education to induce human beings to continue thus handling things, but with more and more attention, perseverance, and conscious purpose.

The senses which have most significance for the development of the soul's activities are *hearing* and *sight*. For this reason they have been called the higher senses, although they are far from possessing that decisive significance for life and death which belongs to some of the lower senses. But while the sense of smell does not reach far beyond the

body, and while the sense of taste and the various kinds of touch-sense act only in the body itself, hearing brings us messages from distant places and sight all the way from infinity. Hearing and sight thus extend our knowledge to an immeasurably greater compass than if we lacked those senses and were compelled to content ourselves with the others. However, the possibility of attaining a considerable mental development without sight and hearing is proved by a few blind and at the same time deaf and dumb individuals, as, for example, Laura Bridgman, and particularly Helen Keller; but in these cases extraordinary energy is required, and a very careful education.

As already remarked, the newborn child is at the outset completely deaf, because there is liquid in the cavities of the ears; but it is only half a score hours or so before the middle ear and the ear passage are filled with air; and then the sense of hearing begins to work. Both noise and notes are apprehended by the child's ear; song and music catch its attention very early. There is, however, disagreement as to when the child begins to hear. Some think that it does not hear even the loudest noise during the first few days or even in the first week. Others believe they have observed that a child perceived sound three hours after birth. My eldest child, R., listened in any case at the age of fifteen days when sung to; and as to S., her mother thinks that she was soothed by singing to once or twice on the very first day; this is, however, doubtful. On the other hand, S. noticed the banging of a coke-box lid when she was eighteen days old; and at the age

of twenty-seven days R. heard me crack a nut, for she turned her eyes towards me immediately on the sound. The day after, however, she failed—apparently, at least—to hear a violent and long-continued New Year cannonade down in the street. Neither while she slept nor while she was awake could the least sign be detected that she heard any of the reports. Of course it is possible she did hear them, but in any case the cannonade caused her no uneasiness.

In the child's comprehension of what is said to it an extraordinarily great part is played by the inflection of the voice. It cannot understand the words themselves; but it can fairly early hear in the voice whether it is friendly or unfriendly; and the child knows its circle better by their voices than by their looks. When S. was fifty-seven days old and I was sitting by her cradle, I scolded R. and said aloud in an angry tone: "For shame, R.!" On the instant S. began to cry, without any other discernible cause except the sound of my voice; and when I spoke soothingly to her she very quickly became silent. When she cries she can often be soothed by being spoken to in a gentle tone. If I placed myself before her cradle, so that she could see me, this produced no particular effect; but as soon as I spoke, she smiled and waved her arms about.

I experienced the importance of tone of voice when S. was one hundred and sixty-two days old. As often as I said to her, pitching my voice on a high note: "Can you laugh a little at father?" she began to laugh, but whenever I said the same words in a

deep voice, she did not move a feature. When S. was one hundred and sixty-seven days old, I was away for a week. When she waked and saw me after my return, she became uneasy, and obviously did not recognise me; but as soon as I spoke to her as usual, she gave me a friendly smile.

R. has taken a lively interest in singing from the time when she was quite small. Whenever she was sung to she listened attentively and gazed fixedly on the person singing. When she was eleven months old, she several times put her hand with extreme interest into my mouth while I was singing, as if she wished to take hold of something in it. The notes?

According to the available experience, babies as a rule have a great feeling for song and music. A child aged one month has been observed to show great joy over music; and Tiedemann's son, who heard the piano played for the first time at the age of fourteen days, was made thereby very lively and happy. Now and again children keep their arms and legs quite still and listen when they hear music. R., who has never had an opportunity to hear music at home, always seemed highly interested whenever she heard music outside. At the age of a year and a half she was in the Zoological Garden and heard the orchestra play. During the pauses she grubbed in the gravel or busied herself otherwise; as soon as the music began, she became quite still and gazed fixedly at the orchestra with strained attention. Unfortunately, the great majority of children have only occasionally any opportunity of hearing music; for just as children's power of language is affected by hearing people speak nicely, so their ear

is trained to the appreciation of good music if they have daily access to this pleasure. It is certainly not due to inheritance exclusively that in certain families there are many musical persons; for they enjoy the opportunity of having their inborn talent developed by hearing music and song from the time when they are quite small. Possibly one may be sure that the unmusical members of musical families are without inborn talent; but in families where there is neither playing nor singing there may quite well be many with considerable musical gifts that never reach development. It is therefore of great importance for the unfolding of children's musical powers that the school should begin as early as possible to exercise their musical sense; for the present this is done only so far as concerns singing; practically nothing is done for instrumental music.

On the other hand, when children "play" it is, as every one knows, intolerable for grown-up persons to listen to their performances. Their music is both false and unrhythmical. If they hit on a rhythm, it is perfectly satisfactory to them and is repeated *ad infinitum*, just as when primitive folk play music. For instance, if a boy has a stick, it is an immense joy to him to run along a railing and hear the rhythmical tattoo; and he will hammer indefatigably on a drum to the same measure. When R. was once thoughtlessly given a present of a mouth-organ, it amused her day after day to play two alternating notes produced by breathing in and out through the instrument. The child is thus quite primitive in its musical tastes, even if it can be pleased by highly cultivated music; and one has no need to

be uneasy about frequent repetition and simple melodies, for these do not offend small children, but agree with the stage of their development. But of course it does not follow that this is the only kind of music they ought to hear.

Our chief sense is that of sight, especially in the case of the adult. By hearing we more often than not merely come to share in what is in another person's mind. Sight has a far more original function. Just as the fingers continually feel things and thereby learn many of their qualities, so our eyes, figuratively speaking, "feel" that on which we fix them or over which we allow our glance to pass. The senses of touch and of sight co-operate in a high degree; but this becomes evident only on closer reflection. As soon as one considers the matter, however, it is not difficult to recognise in how great a degree the information which we have received, or are now receiving, with the help of our sense of touch is the basis for our understanding of what we apprehend by the sense of sight. For example, a little child recognises the spherical shape of a ball directly by aid of the touch-sense as it holds it in its hands; but if it never handled a sphere it would be a long time before it came to understand the sphere's uniform roundness, for this would require the sphere to be seen from many sides. The distribution of light and shade which helps adults is not of much use to the child if it has not *felt* the sphere. In reality, we see much less than we think we see; a great part of the visual image rests on mental additions derived from previous experiences. To use the senses, especially to see, is by no means so straightforward a matter. Apart from quite simple

impressions, for example, the effect of the light of day or the darkness of night, there is almost always required a quite elaborate *interpretation* of the effects produced on the nervous system. If, for example, one sees a large, square spot on a wall, one does not as a rule apprehend it as a square patch of black paint; experience tells us that it is a hole, for example, where a pane has been taken out. Cases of doubt may arise; but then if one succeeds in thrusting a hand or a stick through the spot, one may be sure that it is a hole. If, therefore, one is not in possession of experiences ready for use, one often interprets wrongly. The pupil of the eye, for instance, is commonly thought of by laymen as a black spot; but is merely a round hole in front of a dark body, namely, the interior of the eye.

By reason of the interpretation which our visual images need, the child is capable of "seeing" in a far lower degree than the adult. To see with understanding is indeed a great art, only to be developed by exercising the visual apparatus and the intelligence at the same time. To "see" well demands, in particular, great attention, perseverance, and thoughtfulness, in addition to a stock of experiences which can be used for comparison in the service of interpretation.

As regards the newborn child, the eyes are fully developed in the sense that they have the same structure as in the adult, and that they are connected with the brain by the optic nerves; but that part of the brain with which we *understand* our visual images, namely, the cortex in the hindmost part of the cerebrum, is far from being fully de-

veloped. The newborn therefore cannot see, but yet is not blind. The eye—and the brain too—can perceive the contrast between light and darkness: the infant thus lives in the light when it wakes and opens its glazed, visionless eyes. But the newborn child sees nothing, for it cannot interpret the images photographed on its retinæ. Possibly, as some have thought, it is also bewildered by the multitude of impressions; this, however, is doubtful, for later on the child "selects" unconsciously from among many impressions those particular ones which it notices.

As is well known, infants cannot bear strong light; but, on the other hand, they are highly engrossed by light of suitable intensity. Thus Locke was right in saying: "As the soul thirsts after ideas, so the eye thirsts for light." Children turn their eyes towards the light; and if this is not too strong they gaze fixedly at it. R. was thirteen days old when she came home from the clinic, and from that day she always looked attentively towards the light, daylight as well as lamplight. When she was twenty-seven days old, she lay for a long time gazing at the white, strongly illuminated ceiling, and some days later she fixed her eyes on the patch of light seen on the ceiling immediately over the lamp. When she was a little more than two months old, I carried her one night, by way of exception, to and fro in the rooms; she kept her eyes continually fixed on the hanging lamp, and once turned her head right back to see it, so absorbed she was in the light. Her interest showed itself also in her play of features and her movements. She wrinkled the skin of her forehead and drew it up

and down, jerked her head vigorously, stretched out her arms, and waved them up and down. She displayed much emotion, and was made very happy by the light. S., who was born after electric light was installed in the suite, was brought home at the age of fifteen days, and immediately showed herself very sensitive to the strong light from the bulbs, so that a reduction was necessary. But as soon as this was effected, she looked with interest at the lamp when turned on. There was no opportunity, however, to see her fix her eyes on patches of light on the ceiling, as the electric light is diffused equably from the lamp.

One peculiarity about the infant's eyes is that they are, as already mentioned, without the seeing look —glazed, dull, "soulless." I observed vision in R.'s eyes for the first time when she was eighteen days old; she was then busy looking at her mother. S. was twenty-one days old when I first saw vision in her eyes; she was looking at my finger, which I was holding out in front of her. When vision appears in a child's eyes they have at once essentially the same character which they retain permanently.

When the child is a few days old, it begins to follow moving objects with its eyes. After reaching the age of twenty-seven days, R. looked for her parents very eagerly, and if any one approached her cradle from behind she rolled her eyes right up towards her forehead in order to fix them on the person.

S. began to look for us when she was thirty-four days old. If any one stood behind her head-rail, she would wrinkle the skin of her forehead and make a great effort to see backward.

Observation of the surroundings begins, however, before the child seeks to follow moving objects with the eyes. When R. was sixteen days old, her mother held her in her arms, and R. then looked at her mother's striped dress as if she had "noticed" that there was something remarkable about it. Of course so small a child cannot in the least understand what it sees; but for all that the regular alternations of white and blue stripes may have fascinated her. An observer tells of a girl, aged only ten days, who contemplated her mother's conspicuously coloured clothing. When R. was sixty-two days old, she discovered the hanging lamp, which was not lighted, and continued to gaze at it for a long time; five days later she was so taken up with the various objects in the room that she was quite unsteady in taking her food. I saw S. for the first time observe attentively when she was sixty-two days old; she was then lying and looking at her hands.

When the child looks at an object it makes an unconscious effort to direct both eyes towards it, but the effort is not always successful. A newborn child most often squints; and quite a large amount of practice is needed before the child's eyes obey correctly the call to co-ordinate. This power is, however, gradually acquired; and after about three months the child seldom squints, unless it is permanently squint-eyed.

The difficulty of co-ordinating the eyes is perhaps one of the reasons why the infant does not follow with its eyes bodies in rapid motion. When S. was twenty-one days old, she could certainly look straight at my fingers, which I held immediately over her eyes,

but when I moved them sideways or in the direction chin to forehead or *vice versa*, she did not follow the movement. When she was eighty-two days old, however, she followed with her eyes a mirror which was moved slowly sideways. An observer's child, when in its fourteenth week, followed with certainty the movements of a pendulum swinging at forty oscillations per minute; but one child was first observed to follow a flying bird with its eyes at the age of five months, and another child in its twenty-ninth week.

When the infant contemplates fair-sized objects at rest, its attention is nearly always held fast by a detail; that is, the detail is for the child an interesting whole. The child looks closely, for example, at a button on a coat or shirt; and such trifles are thoroughly studied with wrinkled brow and long-continued gaze. But one cannot see that the child's eyes pass over the whole object, or that this is taken in at a glance. According to the child's opinion a person is essentially the eyes. The child always looks for the eyes; and R. said one day, when she was about two and three-quarters years old: "Father, may I see your eyes?" These constituted the person.

The faculty of apprehending spatial relations by the aid of sight is naturally not possessed by the child immediately after birth, as it then cannot even see objects but only light. When it has progressed so far as to see objects, it apprehends everything, to begin with, as in one plane, and sees only colours and varying intensities of light. Perspective does not exist for the infant, but must be acquired by experience. As perspective rests on differences in

distance, this means that the child must gradually learn that objects, and parts of objects, lie at different distances, and that this is the reason why they look as they do.

The child gains its first notions of distance, as already mentioned, when it lies in its cradle and feels what it can get hold of. The length of a rattle is thus the distance between the extreme points of the handle and the head; the cross-measure of a ball is the distance between the extremities of a diameter, and so on. A later stage in the apprehension of distance comes when the child begins to grasp at things out of its reach; it gains thereby an immediate perception of the difference between distance less than arm's length and distance greater than arm's length, and at the same time the eye is practised in appreciating this distance.

The point of time at which the child thus begins to take hold of things varies of course greatly; and the first efforts in this direction may easily escape the attention of even a careful observer. The quite young infant when awake usually lies and spreads out all its ten fingers in the air, if it is not busy sucking them. R., for example, at the age of eighteen days, did not lay her hands on her mother's breast while she was being fed, but stuck them out casually in changing directions. At the age of three months she did sometimes lay her hands on her mother's breast while being fed; but it was not till she was seven months old that she was observed to grasp at everything that came into her immediate neighbourhood; and she could then sit up in her cradle. In the case of S., however, it was observed

that at the age of two months she took hold of her bottle when she drank, and the day after she grasped one of her hands with the other; as early as at the close of her third month she was very eager to stretch out her hands and snatch at the down quilt or, for example, my fingers.

When the child can sit up in the cradle it is naturally in a better position to grasp at things and exercise its judgment of distance and its appreciation of perspective, even while it is lying down; but these exercises do not get a real start until the child begins to crawl and more particularly to walk. It is, however, a long time before the child has an even approximately correct idea of distance. An observer tells of a child nearly a year old which night after night asked for the moon and stretched its little hands out for it; and even if this does not *prove* that the child thought that the moon could be reached, and was only a sign that it wanted the moon, it is quite reasonable to suppose that the child really believed the moon was within reach. When R. discovered the moon at the age of one year and eleven months, she was, however, not so exacting as to wish it brought down to her, but took it for a lamp and said: "Light up there." Preyer's son, when nearly two years old, tried to hand a piece of paper to a person looking out of a first-floor window, and thereby showed, as we may suppose, that he could not appreciate the great distance. It is clear that many experiences must be garnered by the help of movement before the child is in a position to judge distance by the eye alone. Besides, some part is played by the fact that the child's first measure of length, its stride, is so small;

hence distances that are quite short according to an adult's reckoning are long journeys in the estimation of a child. One day when I was playing with R., then three years and three months old, and we were running round the rooms, I hid by a chest of drawers two yards to one side of our course. When R. discovered me she said: "You mustn't run so *far* away." For her, the two yards to one side of our path was evidently a considerable distance.

Although the development of the sense of *sight* is of extraordinary importance for the child's life, one ought not to give the infant direct exercises in seeing. It has enough initiative in itself; and wherever it turns its eyes there is something to see. Just as in the case of the other senses, so in that of sight we can take things quite calmly in the child's first year: it looks after its own education.

VI

MOVEMENTS, IMITATION

WHEN the child uses its sense-organs, it executes a number of movements—with the tongue, for example, when it tastes, with the eyes when they are turned to follow a moving object, with the hands when anything is felt, and so on. But in addition to the movements performed for the sake of using the senses, the child is active in other ways.

It has already been mentioned that the child moves before birth. During the first period after birth most of the child's movements are purely spontaneous; that is, involuntary and caused by an internal stimulus. To this class of movements belong the restless, fortuitous jerkings of the arms and kickings with the legs, the spreading of fingers or toes, grimaces, movements of the eyeballs during sleep, and so on.

It is easy enough to see that the infant does not *control* its movements; these movements are a chaos, and performed wholly at random. When the child becomes a little bigger, however, the spontaneous movements are thrust into the background by the voluntary movements; but during sleep they may be seen for a long time.

Another kind of movements are the previously-mentioned reflexes, which are due to external influences, and which take place involuntarily and unconsciously; but from these it is hard to distinguish many of the child's instinctive movements. For example, the act of swallowing is a reflex, while that of sucking is an instinctive movement. So soon as a mere finger is laid on the child's tongue it begins to suck at it; and S., at the age of four days, always made a sucking mouth as soon as a finger was brought close to her lips on her crying from hunger. If, however, she cried for some other reason, *e.g.* because she was wet, she did not make movements towards sucking.

In regard to the development of the child's *soul*, the most interesting movements are those which are more or less due to the will. To begin with, however, the element of will is very slight, and the movements are nearly all reflex or instinctive; but the child's mental images of its movements grow gradually in intensity, and then the movements are called conscious and voluntary.

The development of movements with the hands may serve as an example. The hand-movements of the quite young infant are, as already mentioned, entirely indeterminate and spontaneous; but it is also quite easy to provoke reflex movements. If one lays a finger in an infant's hand, it curves the fingers together, closes the hand; and it has so relatively great strength in its fingers that it can hang by them, supporting the weight of its body. This, it may be conjectured, is a reminiscence of man's origin. Moreover, the child also "closes" its

feet, if one may use the expression, when one places a finger beneath the toes. I saw this in the case of S. when she was six months old, and it still happens now that her age is seven months. When S. is in a good humour, she lies and clambers in the air quite spontaneously. It is as though she were climbing on to an invisible branch lying at a little distance above her, parallel with the long axis of her body.

From the spontaneous or reflex movements with the hands there is a steady transition to uncoordinated and badly controlled but voluntary movements, and thence on to well co-ordinated, surely controlled, voluntary movements, as when, for example, the child grasps its feeding-bottle with both hands and guides it to its mouth. S. did this for the first time when she was one hundred and eighty-six days old.

A group of particularly interesting movements are those which gradually issue in the child's being able to stand and walk, namely, movements with head, neck, body, and legs. Little by little the child progresses to the point of being able to stand erect, of acquiring the human posture. Practice and development begin fairly early with the head. The quite young infant's head always lies entirely on what is under it, and must be supported when the infant is lifted; but at an early period the child begins to raise its head a little now and again. S. raised her head for the first time when she was eighteen days old; and at the age of sixty-eight days, when she was laid on her stomach, she held her head lifted high for a long time. Her neck had thus already gained considerable strength. At the age of about four

months she could lift both head, neck, and shoulders quite high in the air; and after a period during which she kept very still she began, at the age of about six months, to take hold of her down quilt in order to raise herself into the sitting position.

In R.'s case development was much the same as with S. For example, she exercised her trunk muscles, when laid on her stomach, for the first time at the age of eighty days, but later every day. After the same preliminary rising exercises, sometimes aiding herself with the down quilt, she sat up all by herself when she was seven months old. At the age of eight and a half months she took hold of her cradle, or rather bed, and raised herself, although she had a heavy covering over her. Not more than a month later she took hold of the back board and raised herself so high that she could see over the top; but she was strapped in, and thus did not support herself by the edge of the bed alone. At the age of ten months and three weeks, she raised herself, unaided, on her mother's lap, but was then supported under the arms; and at eleven months she stood straight up in her bed, only supported by grasping the edge. When she raises herself in this way, she first of all plants the outer edges of her feet against whatever is underneath her, just like the anthropoid apes; the weight of her body then presses down the soles also. All her progress, right from the time when she lay flat on her back till when she stood and peeped over the bedside, was made without any interference whatever from grown-up persons; and every time R. lifted her head, raised the upper part of her body, or finally got up standing, she eagerly

looked at her nearest surroundings. There is therefore sure ground for assuming that the child's interest in its surroundings, its curiosity, plays an essential part as a driving force in the child's efforts to stand up and to walk. That such interestedness is great at an early period, I observed, among other things, when I held R., then eighty days old, so that she could see out of the window. She was for a long time much entertained with this. When S., at the age of about half a year, lifted herself up in the bed with the help of the down quilt, she very often peeped towards the side on which she heard us talking. She wanted to see.

Imitation of grown-up persons can hardly be taken as the ground of the child's endeavour to get up on two feet; there must, on the contrary, be an inherited disposition to assume the posture peculiar to man.

Just as R. was left entirely to herself to learn to stand, so she taught herself of her own accord and without help to move forward. To begin with, she rolled herself forward on the floor. When she was sitting, but wished to move away, she laid herself down on her stomach, rolled over a half turn and sat up again, and so on. When she was eleven months old she began to crawl on all fours, without our being able to see that it pleased her or that she was otherwise affected by her discovery of a new way of moving. If she felt any emotion, she concealed it well. All children, however, do not crawl before they set about walking. Some roll forward, others go tobogganing, while others again sit quite still without stirring from the spot, until they suddenly raise themselves up and walk.

Our leaving R. to herself was not due to accident but to reasoning. The child can early enough begin to move itself, and of its own accord it practises one after another all the usual ways of moving; one may therefore take things quite calmly and leave the child to itself. If one helps it, on the other hand, one may easily do it an injury by tendering help too early. It weakens the child instead of helping it; and there may very well be permanent harmful consequences; for example, crooked back or curved legs. Go-carts are quite foolish things to use.

Though it is doubtful whether imitation lies at the root of a child's attempts to raise its head, neck, shoulders, and so on, for the purpose of getting up standing, it is yet certain that it very early begins to imitate those around it. The child literally lies in wait to watch what one is up to; and one fine day one finds that one is being imitated. It may very well be that the child has already imitated long ago; for it is difficult to verify whether an act is original or depends on imitation; but now and then one gets hold of unmistakable evidence that one is being aimed at. R. first showed herself to be imitating when she was sixteen weeks old. I was standing bending over her bed and produced a few notes to soothe her; she at once became much excited, and herself produced similar notes of about the same pitch. Possibly this was R.'s first essay in that work of imitation which is of such extraordinary importance for education, both self-education and the education which is more or less enforced. If one thinks of how one occupies oneself, from rising in the morning till going to bed at night, one soon discovers that the great majority

of the daily doings rest on imitation. Even adults are extremely ready to imitate each other. If only we may be allowed to laugh a little at a new usage on its inception, we easily accustom ourselves to it by degrees, and afterwards can ill tolerate others behaving differently. In evil as well as in good most of us are swayed by imitation; and in general it is necessary to penetrate deep into the inner sanctum of personality before we reach anything not rooted in imitation but spontaneous and original. Imitation is the source of the greatest part of most men's ego; and it manifests itself very early in the child. Some have seen children in their third month peeping at the same objects which grown-up persons were looking at. Another observer has noticed a child in its thirteenth week "trying to take part in the conversation by uttering inarticulate sounds."

The child, however, sets to work imitating with particular energy when it is about half a year old, and it gradually comes to remember its imitations and to repeat them. It takes pleasure in practising what it has caught grown-up persons doing. When R. was in her thirty-first week, a boy down in the street whistled through his fingers; and she immediately reproduced the shrill note—shortly afterwards she repeated it twice. When any one nodded, she at once nodded too, and she formed the habit of sitting and nodding with a solemn face. When her grandfather cleared his throat, R. also cleared hers. One day when I struck my knee with my hand, R. struck my knee with hers. The imitation was here not quite parallel with the model; she ought to have struck one of her own knees. This shows how thoughtlessly

children imitate. They do not form any idea at all of the significance of the actions which they imitate; they do not understand what they do; they only wish to do the same as others.

This imitation has, of course, the greatest possible importance for education; it is a main condition of the child becoming a social individual, a citizen in a community. Without a certain agreement in modes of acting, thinking, feeling, and so on, a society is inconceivable. A host of wholly dissimilar individuals is not a community.

For educators at home and in school the child's habit of imitation is well worth consideration, and something necessary to be reckoned with, if satisfaction is to be given. As the child, unconsciously or even with full consciousness, approves the conduct of parents, elder brothers and sisters, grown-up persons, and imitates all that it is capable of doing, it daily acquires good or bad habits according to circumstances. This is a point seldom taken into consideration.

VII

ATTENTION AND MEMORY

FOR the development of the child's capacity of using its senses and of imitating others, and for many other purposes, it is of decisive importance that it should be able to be *attentive*. By this is to be understood that consciousness is focused on a single impression, or on a group of impressions, while others are as far as possible disregarded. Even in the newborn child it is possible to point to a kind of involuntary attention, caused by some strong impression; but the infant is not capable of *fixing* its attention on anything. The infant's attention is governed by whatever is going on; and accordingly the infant is desultory—that is, weakly attentive, now in one direction and now in another. As the child grows older, it gradually acquires more and more capacity for being held, or even fascinated, by a single, interesting impression; and later on it develops the power of fixing its attention consciously. This power of attention is of the greatest possible importance for the development of the highest manifestations of the child's soul life; and it is therefore necessary to be cautious about making use of the ease with which the child's attention is diverted by one or another impression. This is, of course, a familiar

trick in the ordinary management of children. Little Peter cries, and it is uncomfortable to listen to him; but as soon as one says: "Come, and I will show you something," he runs off interested and ceases to cry. Apparently, one has won a victory, when one has thus diverted a child's attention. In reality, however, it is often a defeat; for quite possibly the right thing for Peter was to keep his attention fixed where it was and to receive the necessary guidance on the matter which made his emotions a nuisance to those about him. We ought to be on our guard against dividing and distracting a child's attention; we should, on the contrary, come to the aid of a child which involuntarily or consciously has become attentive to some one thing. If it finds a snail and examines it closely, we should not entice or force it away from the snail, unless there is some necessity for so doing, but rather help it to give sustained attention. It is only the person who can dwell long and intently on his impressions that gains anything capable of being retained and made fruitful.

In the preceding sections we have already adduced a number of examples of the infant's attentiveness; and it results from the examples that the child makes steady progress in its power of fixing its attention upon a single phenomenon. As already mentioned, it is especially impressions of sound and light that make the child involuntarily attentive. As soon as R., at the age of eighteen days, got the seeing look in her eyes, she contemplated her mother—that is, looked at her attentively; and in the period that followed she showed attentive observation of the patch of light

FIG. 1.—R. (age 9 months) attentively observant.

on the ceiling over the lamp, of the unlighted hanging lamp, and so on. When she had reached the age of about nine and a half months, she had, however, quite a different power of fixing her attention on a particular object. She had looked at, felt, and tasted my magnifying glass; but it was time for me to go, and in order to get my glass back from her in a considerate manner I gave her a shining silver spoon with one hand while I took my glass with the other. She, however, followed the glass with her eyes, as I put it in my pocket, and let the spoon lie.

We see directly from the last example that attention is, among other things, of importance for memory. All else being equal, a thing is so much the better remembered the more attentively it has been perceived by the senses. For this reason among others, growth of memory in the child follows the development of attention. The first weak indications that a child remembers are, however, generally overlooked; it is also often very difficult to decide whether an action depends on memory or whether it is instinctive or reflex—which is another way of saying that it is an inherited memory. But one can early obtain clear evidence that a child remembers; without memory it could not observe. And a child early becomes capable of what is unmistakably memory. When R., at the age of twenty-four days, was hungry and cried and waved her arms about in order to obtain food, she became silent on the approach of her mother; she obviously remembered that her hunger had been satisfied when her mother came. When she was two months old I once, by way of exception, carried her to and fro. She looked all the time at the

lighted lamp, and one time turned her head right round to get sight of it; she must therefore have remembered that the fascinating light was round to the back of us. At three months R. could remember the difference between food and medicine, or rather between nice and nasty. She had been given some mixture, how long before was unfortunately not recorded, and she now behaved differently according as one brought her something in a cup or in a bottle. In the latter case she most decidedly refused to feed, for in the bottle there is—nasty—medicine. If the food came in a cup, however, she at once ceased crying and was willing to feed. But when in the course of about three weeks she had begun to take gruel from a bottle, she gradually ceased to resist bottle food. When she was four and a half months old she could recognise the bottle in which her milk was, for when she was crying from hunger she at once ceased as soon as she was shown the bottle with her gruel in; and when she was eight and a half months, the preparations for her meal were enough to quiet her, for when she saw milk being poured from a jug into a pan, or when the cooler with the milk-bottle in it came into the room, she became silent. If she had not seen any preparations, one had only to rattle the bottle inside the cooler, and then she was quiet.

It is possible that R. remembered her name when she was four and a half months old, for when I had called "R." several times she turned her head round towards me; but it was not till she was six months and ten days old that she turned her head every time I called "R." When she was seven and a half months

old she remembered that her mother had played hide-and-seek with her behind a curtain, for she hid herself of her own accord and laughed heartily when discovered.

It is by memory in combination with the child's extraordinary receptivity for repetition that daily habits, among other things, are acquired. One day when R., then ten months old, saw her bottle with food in it, she lay back on her pillows of her own accord, whereas previously it had been necessary to lay her down when she was to feed, and from then on it was a habit with her. Similarly, memory co-operates in bestowing on the child many other valuable habits. It learns, for example, to use the proper utensil instead of its napkin, if only it is given practice as early as possible. Of course memory also plays a leading part in the acquisition of language.

By the use of its senses and memory the child gradually collects the experiences which form the material for its thinking.

The thinking of an infant, however, is in many respects a long way behind that of grown-up persons; and it is only gradually and slowly that the capacity of thought is acquired.

Still, a clear sign of thought was once shown by a little boy four months old, when playing with his toys which lay round him on the floor. A particular toy got out of his reach, but he took a clothes-peg and pulled it to him.[1] He was as thoughtful as the baboon in the Zoological Garden, which raked to himself with a few straws a slice of carrot which I had thrown into the next cage. Another boy, eight

[1] From Tracy, *The Psychology of Childhood.*

months old, asked for food when his nurse was eating; he no doubt thought: "That is food, so I too must have something," or equivalently. It is, of course, also possible that he became hungry at the same time as his nurse.

VIII

THE EMOTIONS IN THE FIRST YEAR

AT the same time that the child receives impressions, it also as a rule experiences feelings either of pleasure or of pain. It may be doubtful whether influences which cause reflexes are always accompanied by emotions; in any case, these must often be extremely vague. On the other hand, every conscious presentation has its feeling-tone. It arouses joy or sorrow, friendliness or anger, comfort or discomfort, and so on. In the infant it is, however, difficult to observe the existence of the vaguer emotions; it is only the violent emotions that express themselves by play of feature, by weeping, by embracing movements, and so on, in outbursts of such intensity that they are noticed. Besides, the quite young infant lacks clear presentations, so that the emotions displayed by it, though similar in their mode of expression, are very different from those of older children and more particularly of adults.

A trait common to all children, from the earliest period till far on in years, is their rapid changes of emotion. A nothing turns tears into smiles, and a slight cause sets the tears flowing again in a moment. In this respect, as in many others, the child reminds us of the primitive races; for among these even

the adults are as changeable in their emotions as children.

Signs of *fear* may be observed in the infant long before it has any idea of a reason for being afraid. This fear must thus be instinctive. I saw plain signs of fear in R. when she was eight months old. She was sitting crying, and did not hear me come into the room to her, but became very uneasy on my sudden appearance. It is indeed a matter of general experience that infants often set out to cry when they hear a sudden, loud noise or unexpectedly see something unusual. Sometimes infants have been observed to be afraid of persons clothed in black; S. was thus afraid both of her grandmother and of an aunt, when she was eight months old. Often, too, they can be made uneasy by being touched with furs. At six months, S. was very afraid of her grandfather, although he looked at her in a friendly way. Presumably it was the beard and the big strange face close above her that called forth the fear. Another day, in the same month of her age, she was afraid of a large dog which barked right into the carriage at her. It is especially sound that rouses fear in children. Darwin shook a box with sweets in it before one of his children, and so made it afraid; but when he afterwards shook the empty box, the child showed no uneasiness. As already related, S. became very frightened and cried, when she was two months old, because I scolded her sister—that is, spoke with a deep, severe voice.

Anger is an emotion which the child feels very early, and its crying is often a sign that it is angry. Crying is by no means merely a sign of annoyance

or sorrow, but quite as often a craving for something. "What does the little girl want?" said R. one day when she, being then three years and one month old, heard a little girl cry. This is the commonest state of affairs. It is, however, difficult to say how early anger shows itself. One observer thinks he saw a child display anger shortly after its birth. Darwin found sure signs of anger in a child's fourth month; its blood went to its head, just as when adults are angry. Dissatisfaction and impatience, however, are emotions of which the child shows signs much earlier; and it is a common characteristic of all children that they show, absolutely without control, how discontented, angry, or offended they are. In this field they are in a high degree of the same mental type as primitive races, which so easily blaze up in ungovernable rage and know nothing of controlling themselves by the aid of reason.

Sympathetic emotions, friendliness, affection, and so on may be early observed in small children, but they are at first displayed only towards those who tend them. As already remarked, however, it is difficult to decide whether the observed external signs of sympathetic emotions are trustworthy or mere illusions; hence also there is great disagreement between the reports of the different observers. R. smiled, presumably for the first time, when she was one month old: but it cannot be said with certainty that she smiled in a friendly, sympathetic way before she was quite four months old; from then on her smile was in the order of the day. When she was seven and three-quarters months old she showed her goodwill by patting me on the

shoulder time after time, chirruping all the while. In the case of S., I observed an indubitable smile for the first time when she was a month old, one night when I drew the curtain back from her cradle; but in the preceding days there had already been weaker smiles or indications of smiles. When she was about five months old, I could get her to smile whenever I liked by saying to her with a voice pitched on a high note: "Can you laugh a little at father?" and at six months she expressed her joy and friendliness not only by smiling but by kicking vigorously, with her arms going all the time. An observer tells of a six months old boy who wore a very grieved expression on his face when his nurse pretended to cry. Another child of eight months began to cry if any one made as if to strike his nurse.

Jealousy also reveals itself in the child at an early period. A child of three months became jealous if preparations were made for some one else to be fed at its mother's breast; and a girl of three and a half months screamed with jealousy if her sister sat on her mother's lap. Another girl, ten months old, would not even be content to sit on her nurse's lap along with another child. She wanted it all for herself.

These little traits show how important it is to educate a child's emotions early. No doubt a mode of feeling is difficult to alter, because it is in so high a degree determined by inherited potentialities; but even in this field, guidance can at least exert a profitable influence on the manner in which feelings are displayed.

By presentations and emotions *will* is nourished. But in the case of the infant, its will is known only from its actions. The volitions of the adult may also take the form of wish, purpose, resolve: he can will, if he like, in the future tense; every one knows this by self-observation. The child, on the other hand, lives in the present moment; when it *wills* an action, it performs it. At bottom, therefore, all the examples previously adduced of the infant's *conscious* actions are also examples of its volitional life—of that side of it, at least, which we are able to obtain knowledge of.

One consequence of the fact that the child lives in the moment is that it is quite without *morality*, egotistic without limit. The quite young infant cries, and thereby gives out not only that there is something the matter, but that it wants something; and if we do not take heed with our concessions and our indulgences, the child may soon become a tormenting spirit. For the child, one time is every time. If one has yielded where it was best to resist, the only result is that it is twice as hard to defy its wishes the next time it wants the same thing. One should take up the challenge at once each time and not shirk the encounter. The child, as already stated, is extraordinarily easy to train into habits, especially when they agree with its own moods; but this training into habits is also the first step towards moral conduct. It takes a long time before the child can *understand* that an action is moral or immoral. It takes a still longer time before it comes to have a really moral disposition, so that it does the right thing involuntarily, without consideration. But it

can learn to do what we grown-up persons regard as right; and this kind of conduct must become purely a matter of habit. So long as the child understands nothing, there is room for the employment of authority; and the small child is in general extremely willing to bend to the wishes of parents and adults, and even bigger children. At bottom, nothing is needed except consistency. If the educators waver, the child becomes capricious and ungovernable; if they are firm, it yields to their will—provided this is not too shockingly unreasonable.

IX

LEARNING TO WALK

IN the first year the child does not make great progress in its development. In any case, it cannot *do* very much. For all that, it may well have accumulated a relatively large stock of experiences; but it cannot with sufficient clearness submit evidence of its powers.

In the following years, on the other hand, the advances are extraordinarily great; and they grow much faster than the number of years, for the development reached by the child in a particular period puts it in a position to advance with additional rapidity in the next period of the same length.

One of the reasons why the child's development spurts ahead so vigorously at the end of the first year is that in a sense it then begins for the first time to be a human being—that is, it now begins to stand and walk on two legs, and obtains free mastery over its hands as grasping instruments.

The point of time, however, at which the child learns to walk is different for individual children, and the mode of locomotion which precedes it is also different, as we have already remarked. R. was fairly late starting. When she was a year and a week old she had got as far as to raise herself up

by supporting herself against a bookcase. She stood so for a long time, but then fell into the sitting posture without this making the slightest impression on her. The same evening I held her for a moment in my hands, after she had raised herself up using me; and then of her own accord she set off walking. Like other novices, she lifted her knees immoderately high and planted her feet heavily on the floor, clack, clack, the whole sole at once. It was as if her legs were of lead. In reality they are comparatively heavy, for relatively to its strength it is a far greater exertion for a child to lift its legs than it is for a grown-up person. But this does not check the small child's eagerness to walk, once the right moment has arrived. The impulse is so strong. R. showed this a moment after she had walked. She fell, that is to say, on the floor, but stretched her hands forward, first to sit, but afterwards to get on her feet again. It was not till she was one year three and a half months old that she began to walk alone. She stood straight up on the floor and set, carefully and tentatively, one foot a pace forward, but that was all. When she had exercised herself in this way for a good ten days, she finally walked seven or eight steps, over the open floor, but one could not see that she was glad or proud or in any way affected by the fact that she was able to walk. It would be remarkable, however, if there were not a grain of self-satisfaction and confidence in the little child when so great and new an art is mastered for the first time. Two days after R. had walked her first steps she ventured right across a room, extremely slowly, with funereal solemnity, without a trace of jubilation.

But when she reached me and wished to come "up," she beamed with joy—possibly because she had been able to walk, but possibly merely because she was glad to come "up."

In the beginning the child's walk is highly uncertain. R. preferred to hold fast by chairs, tables, and other pieces of furniture; she walked with stiff legs and twisted her body about a vertical axis. All the right side of her body swung forward in an arc when the right leg was advanced, and then the left side swung forward. Although she now walked, her feet still had noticeably in-turned soles, and they could be rotated inwardly through a considerable angle.

R. hardly ever fell after she had begun to walk; and presumably this was due to the fact that she was left entirely to her own initiative. She was allowed to crawl until she was able to walk. In certain diseases gentle crawling is employed as a remedy for a weak back; this seems to indicate that the infant's crawling is in itself a natural and useful preparation for walking. When the child is in the crawling position, the trunk muscles enter upon vigorous activity, by which they are stimulated to development, and this is so much profit to the child when it comes to walk. Lastly, the upright position and walking are from a certain time onward natural to men. We should not therefore encourage the child to walk, still less half compel it. It is quite a matter of indifference whether a little child begins to walk a month earlier or later. But, on the other hand, it is not a matter of indifference whether the child becomes, for instance, incurably bandy-legged as a

result of its legs having too early carried the heavy weight of the body.

When the child begins to be able to walk, it may very well have a busy time of it. It takes the measure of the world with its little legs; and the smaller the child is, the bigger is everything it sees. We literally grow out of our childish impressions. The way to school, which was an infinity to begin with, ends by being too short for a walk. The pond where we paddled for the first time shrinks into a miserable little puddle. It is the fault of, among other things, the length of the legs. The case is worse when one has "travelled" without using the legs.

Think, too, of what the small child walks and teaches itself in all quietness, generally without any one noticing. It feels a *square* table-leg and a *round* chair-leg: here it notices a polished *smooth* surface, and there it runs its fingers over a *rough* kitchen-press, and so on. The child walks about and gathers lumps and bruises, a highly uncomfortable but profitable experience, and a forewarning of what awaits it on a grander scale. When a child has learnt to walk, its development marches ahead in earnest; and it is not long before the pace quickens to the double.

X

THE ACQUISITION OF LANGUAGE[1]

ANOTHER leading cause of the child's great progress after the first year is that little by little it acquires language. The consequence is not merely that grown-up persons and elder brothers and sisters occupy themselves more with the child and talk to it, but also that the child is enabled to put questions and to communicate the results of its experiences, receiving corrections, when needful, from grown-up persons. In language the child adds a new source of instruction to its own spontaneous, first-hand investigation of existence; and the course of development with regard to the gathering of experience is characterised by the following stages: (1) The child is a first-hand investigator that cannot speak; (2) the child hears what others have to communicate, but does not itself yet speak; (3) the child begins to tell its own first-hand experiences; (4) the child asks questions. It is not till a later age that reading is added as a new source of instruction.

The first rudiments of speech may be noted during

[1] In order to avoid an excess of phonetic and linguistic explanations parts of this chapter are omitted in the translation. The imperfect Danish spoken by the subject of the observations is not reproduced by correspondingly faulty English; this could not be done to advantage without accurate observations of a child learning to speak in English.—TR.

the child's first year. But we must not here include the sounds pronounced by the child when it cries, laughs, sobs, sneezes, and so on. These are inarticulate sounds, even though they may have their definite meaning, as weeping, laughter, etc.

On the other hand, the sounds pronounced by the child when it begins to babble are a germ of true speech; and sometimes they have a definite meaning. R. began to babble when she was seven months old; and when she was pleased with something that lay within her reach she used to pat it and say, ö-i, ö-i or ö-ö, or ai-ai or ya-ya. (ö = *eu* in Fr. *peuple*). The sounds were produced rhythmically, several times in succession. She "talked" in this way for a long time, but continually enriched her "language" with new sounds. Up to the age of seven and a quarter months she produced the following vowel sounds: a, ø, ö, e (a as in *had*, ø = *eu* in Fr. *peu*, e as Fr. *é*), and the following combination of sounds: ya, na, i (as in *rise*), da, eeya, ana, nana, dai, hoo, but as a rule with a rhythmic repetition of the sound, *e.g.* eeya-eeya-eeya, and so on. She was particularly "talkative" when out driving. The first babblings of S. were, however, better noted than those of R.; and it is on record that she made a beginning when well over two months old. At that time she said now and again a-a-a or hoæ-hoæ-hoæ (o as in *who*, æ = vowel in *care*); this last sound she made special use of when she was satisfied and smiling. At five months she also produced the sound å-å (like a in *call*, but rounded; the first element in the really diphthongal sound of o in *home*) when, so far as could be observed, she was in a good temper.

These first babbling sounds hardly depend on imitation of adults' speech, but probably on inherited predisposition. This, however, is not quite certain; for the child hears those around it speak every day; and it is conceivable that it might pick up and repeat single elements in the sounds of their language as its organs of speech gradually become able to function. But as the first babblings may be observed when the child is no more than two months old, it seems probable that they rest on an inherited disposition to utter sounds like those in the speech of adults. This is also indicated by the fact of experience that it is a relatively long time before the child is capable of purposely imitating the very simplest words repeated to it over and over again. The child can speak its own language and thereby express its moods for a long while before it can imitate the speech of adults.

If the child were left to itself, or tended only by deaf and dumb persons, it would probably not make much headway with its own baby-talk. To be sure, this has never been proved experimentally, or otherwise established on the basis of observed facts, and it is hardly possible to settle the matter by practical tests; but it is not easy to see how a so isolated individual could attain any considerable linguistic development. However, an American observer, Horatio Hale, reports five different cases in which several children have together "invented" a language of their own, quite different from that of those around them, and he tells us that they used it for some time, ignoring the language they heard spoken. This language of theirs was satisfactory to the children themselves among each other, and was used until

they were separated and sent to school. But there were always at least two children to "invent" the special language; and therefore in these cases, too, there was imitation. Similar cases are known in Denmark, and have been communicated by Otto Jespersen in an essay in *Tilskueren*, 1909. A girl in Iceland spoke her own language with her twin brother, and after his death her parents, brothers and sisters, and others accustomed themselves to speak that language, which, however, was essentially a distorted Icelandic. In North Zealand two twin boys were found who talked with each other in a language wholly incomprehensible to those about them in the children's home in which they were brought up. It was, however, not a completely independent, still less a fully-developed, language, but merely a temporary way of speaking which presumably they abandoned later. The case shows, all the same, that in special circumstances children can form their own language. But there can be little doubt that *imitation* of the persons around it is the decisive factor as regards the language a child comes to speak. Inheritance, on the other hand, supplies not merely all the organs of speech, but also the inclination to learn to talk.

The point of time at which children begin to talk varies very much, just as there is also a great difference in the order in which the individual words are acquired. In the broad main lines, however, the course of development is in a measure uniform.

The first word R. tried to say was "Father" (Danish *Far*). She began with this at the age of about eleven and a half months; but she pronounced

it *ar*. Fourteen days later she said *Buar*, *i.e.* Mother (Danish *Mor*, pronounced like Eng. *moor*), but only once. Of course we cannot infer that she understood that these sounds denoted the definite persons, her father and her mother; it is not very probable that so small a child has that understanding. When she was one year and twenty-five days old she said of herself *ma-ma*, when she saw her parents eating; on that occasion she certainly connected a meaning with her word (namely, the meaning "food," in Danish *Mad*, in which *ad* has the sound of *ath* in Eng. *father*). It is no accident that the word a child first begins to use of itself should be a designation of food, for food is the child's main interest.

When R. was sixteen months old, she acquired her next word. She could say *vov-vov*; and when she saw a dog whilst out driving she would point to it and say *vov-vov* with great excitement. The word, however, did not mean simply dog, for she applied it to most of the other mammals one after another. If she saw the pictures in an animal-book, she called nearly all the mammals *vov-vov*; and when she was in the Zoological Garden at the age of seventeen and a half months, the bisons were among the animals which she so designated. She thus employed this word as a name for four-legged, hairy animals; and we may infer, among other things, that she could observe their agreement in essentials but not the differences between them. The fact that she was afraid of the bisons, but not of dogs, may be due exclusively to the size of the bisons, and does not prove that she distinguished them from dogs.

She found a similar common name for birds at about seventeen months, when she was in Frederiksberg Park and called the ducks *r*—*i.e.* uttered a long unvoiced *r*-sound. She used the word a day or two later to denote the sparrows at home; in the Zoological Garden she used it for all the wading birds in the Rose Garden; and she applied it to all the birds in a zoological picture-book.

While the word "vov-vov" *may* be an imitation of what adults have said, it is certain that R.'s name for birds was her own invention. In the summer holidays, moreover, I had an opportunity of observing her inventing a word altogether independently. She and I came to a stable in which two horses were standing. One of them swished its tail, and R., imitating the sound, said *ish*. When she came near the stable next day, she pointed to the horses and repeated the same hissing sound. Quite decidedly it meant "horse."

In the languages spoken by adults, not a few names of animals occur which have the same origin as those in the child-language, probably for the reason that our ancestors of many centuries back, as they still lived on the childish level, named animals as our children do. The crow says *kra-kra*, the chaffinch *pink-pink*, the cuckoo *kuk-kuk*, and so on. Such origins, however, are often obscured by the changes through which words pass in the course of their history.

But by far the greater number of words in a little child's first vocabulary are imitations of adults' speech; though on account of the difficulty of pronouncing the words correctly the child's language sounds differently from that of adults. Parents, how-

ever, and other adults should not on that account allow themselves to be misled into imitating children in their mispronunciations; that is little better than crawling about on all fours in order that children may learn to walk really well on two legs. On the contrary, one should always speak correctly and use good language. In this way the children always hear what is right, imitate it as well as they can, and correct themselves of their own accord. We, too, may correct them a little now and again, in a gentle way, and so help them to talk nicely and correctly while they are still small.

The natural course of development can, of course, not be altered by helping children and setting them a good example. But we can hasten development and make sure of a good result in the end. We cannot get the child to skip the stages of the journey.

In the beginner-stage of speech-acquisition proper, the child, as shown in the examples already quoted, uses only single words and almost exclusively monosyllables. Before she was one year eight months old, R. learnt one by one words meaning carriage, horse, cow, pigeon, cat, tree, chair, man, flower, girl, boy, whip, stick, water, beer.

These single words most often are used to stand for a whole sentence. If the child says its word for food it generally means, "May I have some food?" If it says "Horse," it means, "There is a horse." "More" often means, "May I have something more?" Meumann is of the opinion that children's words in the earlier stage as good as always represent sentences in which the child *wants* something, *wishes for* something, but this is probably

an exaggeration. The great part played by postulatory sentences is simply due to the fact that a child is most strongly interested in its own needs and generally only communicates what it wishes or demands; but there are frequent exceptions. When a little girl says "misse" (*i.e.* chemise) while being dressed, there is no reason to believe that she means to express a wish for a new chemise, or that she is asking to have one put on. It is more reasonable to suppose that the child is merely remarking, "There is the chemise," or something similar.

Long before the child says its first "sentence," it acquires a very considerable stock of terms denoting everyday objects, and corrects the pronunciation of many words. When R. was about one and three-quarters year old, she used, besides the words already mentioned, others meaning dress, boot, trousers, hat, clothes, thanks, pencil. For the last-named object she used the syllable *ish*, which she had already adopted as her word for horse, a pencil being something to draw horses with. Three of these words are dissyllables. Of verbs she used among others: rains, blows, drive.

An interesting peculiarity of the child's first essays in language is the frequent reduplication of the "words," as *ma-ma*, *vov-vov*, *pa-pa*, etc. Possibly, as some think, this arises from the fact that it is easier for the speech-organs to repeat a sound which has just been produced than to go on to a new sound. But this explanation is hardly satisfactory, for the child also reduplicates when it does not utter different words in succession. In principle, it begins with its reduplications at a stage when, for example, it only

says *ma-ma, vov-vov,* and babbles at random *va-va, na-na,* and so on. Surely it is more probably an atavism, a stage of development corresponding to peculiarities in the speech of primitive man. In any case, reduplication is general among primitive races. In modern European languages it is found in from two to three words per thousand; but in the Brazilian Tapi language the number is sixty-six, in the Hottentot language seventy-five, in the Tonga language one hundred and sixty, and in the New Zealand language one hundred and sixty-nine. Lastly, rhythm is easy with reduplication but difficult without it.

Sentences are not uttered by the child till it has talked for a long time in single words, but there is a great difference in the point of time at which the first sentence is spoken. On the other hand, all children's sentences are to begin with very incomplete, and much simpler in structure than those of adults. The child merely joins a few words together without inflecting them or otherwise modifying them.

R.'s first sentence was said when she was about one and three-quarters year old. A hat fell from a row of pegs, and she said, "*Hat bang,*" that is, "There fell the hat," or something similar. The next sentence was of similar character, namely, "*More food,*" that is, "May I have some more food?" In the following period she said, "*Father sleeps,*" "*Man plays*" (with inflected verb), "*Up, Father,*" i.e., "May I come up to Father?" and so on. She said her first negative sentence in a peculiar way when she was just one year and three-quarters. The maid wished to give her something to eat which she did not want, and R. therefore lay down and said, "*Asleep,*" i.e., "I am asleep," but it

meant, "No, thank you, I won't have any of it." Otherwise her usual mode of refusing things is to make a grimace of rejection and to say *um.*

The first inflections I observed in her speech were the plural and the genitive and the plural in such expressions as *boots, Mother's girl, Father's things*; but the ending was often omitted, e.g. *Mother girl.* At the same time she began to form negative sentences with a peculiar use of the word "no," e.g., "*Father sleeps—no,*" i.e., "Father is not asleep," or, "*Dolly boots on—no,*" i.e., "The doll has not got its boots on."

R. said her first complete sentence with copula when she was one year and ten months old, namely, "There is the ball"; but most of her sentences continued to be mere collocations of uninflected words, *e.g.*, "Things on, drive town," *i.e.*, "Mother is now getting her things on, and so we shall drive to town."

Interrogative sentences were first used by R. when she was about one year and eleven months old. The first was occasioned by her discovering her navel while being given a bath. She pointed to it and asked her mother: "What is that?" A little later she showed a toy bear pictures in a book, pointed to them, and asked the bear: "What is that?"

At this stage R. did not yet use personal pronouns. Most often she said "R." instead of "I." She said "I" for the first time at one year and eleven months, but this was not repeated in the period immediately following.

It has sometimes been maintained that the child's self-consciousness cannot be developed until it says "I." This, however, is a misunderstanding. "I" is only a word by which a person can designate himself,

just as by his name, without the possibility of his being confused with other persons. When a little child says, "R. going to sleep," or similar things, it is therefore just as self-conscious as if it were to say, "I am going to sleep." But the child hears itself constantly spoken of by its name; and therefore quite naturally uses the same name in speaking of itself. In this same way it also comes to use the words "Father" or "Mother" where a grown-up person would say "you." It is not until a child has for a sufficiently long time heard the persons round it each designating himself by the word "I," that the possibility of doing likewise dawns upon it. Thus the child's use of the word "I" proves nothing about its self-consciousness, but only that it has advanced so far in understanding and imitating language that it, like adults, can mention itself unambiguously by the word "I" instead of using its name. But self-consciousness is unmistakably present when, for example, a child takes a piece of bread in the course of a meal and says, "R. self," as R. did when she was about two years old. This is indubitable evidence that her "I" has emerged into contrast with the environment, here specially consisting of other persons; but this has already happened long before it is thus become manifest.

At the close of the second year a child uses several hundred words. Some are said to know about 600; but there is a very great difference between individual children. R., for her part, used at least 200 words or exclamations, but probably a large number of words were not recorded.

So far as noted, her vocabulary at this time con-

sisted of 130 substantives, 22 verbs, 14 adjectives, the first 4 numerals, 11 prepositions and adverbs, 7 pronouns, and 21 exclamations, greetings, etc.—209 in all.

The list[1] shows a preponderance of substantives, but quite a number of those recorded, namely, about 15, may be regarded as solely due to the fact that she often looked at pictures in an animal-book. Deducting these, one finds that substantives compose barely 60 per cent. of her vocabulary, while verbs are quite 11 per cent., and adjectives about 7 per cent. But, as Tracy has pointed out, we must not draw the inference that the child uses *relatively* most substantives. We must compare the percentages of the different parts of speech in the child's language and the adult's language; and by this means he has reached the result that the child is most advanced in respect of verbs and adverbs, *expressions for action*, but relatively backward in the use of substantives and adjectives, *expressions for things* and their qualities. According to Tracy's investigations, there are in the child's language, up to the third year, 60 per cent. of substantives, 20 per cent. verbs, 9 per cent. adjectives, 5 per cent. adverbs, 9 per cent. pronouns, 2 per cent. prepositions, 1·7 per cent. interjections, and 0·3 per cent. conjunctions; but in English, according to Fitzpatrick, there are in the speech of adults 60 per cent. substantives, 11 per cent. verbs, 22 per cent. adjectives, and 5·5 per cent. adverbs. The small child has thus relatively many verbs and few adjectives and a small excess of adverbs in its language. This agrees well with the child's nature, its violent craving

[1] The author's list of words, with phonetic rendering of the childish mispronunciation, is for obvious reasons omitted.

to do something; and it also agrees with the historical development of language.

Another psychical peculiarity common to the child and primitive man, one which also is illustrated by R.'s recorded vocabulary, is that nearly all their words denote something concrete, an individual thing. In addition, a word used by a small child is far more concrete in its meaning than the same word used by an adult. When, for example, R. said "bird," she did not mean a bird in the abstract sense of the word, a feathered, winged vertebrate, but she used the word in a concrete sense for every kind of bird for which she had no special name, such as "duck" or "swan." Similarly she used the word "animal" as a designation of all animals that she did not know the names of; but, on the other hand, she always used the special name when she knew it. This shows in the first place the child's inclination to concrete ideas, and in the second place that words which in the speech of adults are of abstract character are really concrete in the language of the child until a certain development has been attained. While the adult reasons somewhat after this style: "This is an animal because it is a living creature with such and such attributives," the child's thought would rather seem to be: "This is like the animal I have seen before, therefore it is an animal." The adult is abstract in reality, the child only in appearance. The child's substantives are not so far from being proper nouns.

In other respects, too, we should be careful about identifying children's and adult's language. Children, for example, talk away at random, without always attaching a clear meaning to what they say:

and this is something we cannot accuse adults of without rudeness. But it is necessary to observe children carefully in order to discover that they simply let their tongues run on. Now and again, however, they betray the fact clearly enough. It happened so to R. one day when she wanted to sing a song about a goblin. When she had finished the first verse, she said to me: "Father, will you sing about the grows?" To begin with, I could not understand what she meant; but it suddenly dawned on me that the word "grows" occurs in the second verse of the song; and when I sang that verse she was perfectly satisfied. The line "Where the giant cabbage grows" had thus become that mystic thing—"the grows." Another day when she had been in the street she took hold of a bell on her reins, showed it me, and said: "What o'clock is it?" (by your watch). "It is half-past four by this watch" (the bell). The bell which had first become a clock because it rings (the same Danish word means "bell" and "clock"), next became a watch because one sees what o'clock it is by a watch. Misunderstandings such as these show that a small child uncritically identifies bell—clock—watch, or that without forming clear mental pictures it allows words to stream in and out—"the grows"—and so it continues well on in the years. Even children of confirmation age sing, for example, lustily through the fine strophe of the morning hymn: "As the ball of earth shall shine out and glow," without an idea of what is meant by "the ball of earth," or by the whole sentence.

Children's comprehension of language particularly depends on their hearing the words in an immediately

intelligible connection, preferably with a concrete starting-point free from ambiguity; otherwise things go wrong. An instance happened once when R. was in her bath. Her mother said: "Now, R., I must wash you in quick time." "No," said R., "it must be in water." That was what she was used to being washed in; and so she could not understand that one might also be washed in quick time. Another day when R. had burnt her finger I took it in my mouth because I had nothing at hand with which to relieve her pain. Two days later she said to me: "Father, will you chew me?" and tried to put her finger in my mouth. If this mistake had not been corrected she would have got the notion that putting a finger in a person's mouth may be expressed by the words "chew me." When she was two years and ten months old she saw a picture of an owl and said: "That is the owl; it has no umbrella," and later, when she came to a starling: "It is only owls that have umbrellas." The misunderstanding was clearly due to the story of little Ole with the umbrella. (The pronunciation of the name "Ole" is not very different from that of the Danish word for "Owl.") We thus see that not only is it necessary to help children to a correct understanding of language, but also that in the acquisition of languages, the mother-tongue as well as foreign languages, it is of great importance for the child to have things, events, etc., to build on. This provides the right connection between the phenomenon itself and the word which denotes it.

This connection is formed long before the child can give proof of it in its talk; for children understand the speech of adults before they themselves can say

anything. R. understood the meaning of her name when she was about half a year old; for every time I said "R." she turned her head towards me. When she was about a year old she understood the meaning of: "Come to father." When these words were said to her she grasped the meaning, even if neither arm-movements, play of features, nor anything else revealed what she was being asked to do. When well over a year old she could understand what was meant if any one said: "R. plays (music)" or "R. hears"; for she set about "playing" with her lips and placed a watch to her ear to hear it tick. When she was a year and a half old she understood the comparatively long sentence: "Go out to Mother with the bucket"; for she went straight from the day-room out into the kitchen to her mother and gave her her little toy bucket; but at this time all that she could as yet say was *ma-ma, vov-vov, r . . .*, and *bar*.

The child's comprehension is thus, on the whole, far in advance of its power to express itself; as the old proverb puts it, "Little pitchers have long ears." But in practice people are much too forgetful in this connection. They talk away about children and praise them in their hearing, especially when they are small. But they listen, and one fine day they understand what one least of all wishes them to get hold of.

In the third year the child makes extraordinarily great progress both in comprehension of language and in readiness of speech. To give a full account of this here would take too long; we must be content with a few specially interesting features. R. used the negative "not" for the first time when she was

two years old. She said: "Must not—why must not?" The occasion was that she was not to touch the books in the bookcases. As a rule her sentences were still incomplete, as: "Maid holds apple hand," *i.e.*, "The maid holds an apple in her hand"; and all the sentences were principal clauses. Subordinate clauses do not occur till fairly late. She began to acquire the personal pronouns at about two years and two months; but she almost always went wrong in the person. Thus she said: "R. combs yourself (herself)"; "Father shave yourself (himself)?" "Mother can't reach you (us)." Even when she was about three years and a half she still made many mistakes, especially in the inflection of the verbs. She continually made strong verbs into weak ones (on the model of "runned" for ran). The plurals, too, gave her some trouble. One day when she was two years and three months old she said: "R. is eating little brothers," the last word being a faulty plural of the Danish for "bread." A little later she said: "See the little, big dog." Both adjectives were marks of distinction. In spite of her good command over everyday language, she naturally was now and again at a loss for a word; she would then form terms of her own. Once, when sailing on the canals in Frederiksberg Park, she said: "We are out shipping (sailing)."

At the close of her fourth year R. spoke Danish correctly in essentials.

Ability to speak is dependent on, among other things, the speech-centre in the cerebral cortex being in good order. According to recent investigations this centre lies only on one side. In right-

handed persons it is in the third frontal convolution on the left side; but in left-handed persons in the corresponding position on the right side. Since, now, the speech-centre can be destroyed by overwork, and since a new one is not then formed in older persons, the question has been raised whether for this as well as for other reasons one ought not to bring children up to use both hands, and so possibly provide them with two speech-centres, one on each side. Along with this advantage they would have derived the further benefit of being able to use both hands equally well, so that it would become possible for them to rest first one hand then the other, whereas people are now often obliged to cease work because the right hand (in some cases the left) has become tired. But how would things then go with the power of speech? What basis is there for its education? Is the child originally right-handed, left-handed, or ambidextrous?

In order to deal more closely with these interesting questions it is necessary first to recall the situation of particular brain centres and the probable cause of our having only one speech-centre. The centres for movements with the legs, arms, hand, and head lie in a line slanting downward and forward from the crown, and in the lowest part on the left side the speech-centre lies close to the movement-centre for the *right* hand, since the nerves cross so that the nerve-paths from the left side of the brain end on the right side of the body and *vice versa*. It is therefore natural to conjecture that a preponderant one-sided use of the right hand, especially for gesticulation, either independent or

supplementary to speech, brings with it a vigorous development of the movement-centre on the left side; and it is possible that this gives occasion for the development of a speech-centre by the side of it. But if predominant use of the one hand brings about the development of a speech-centre, then there is ground to suppose that the equal use of both hands—ambidexterity—will lead to the formation of speech-centres on both sides of the cerebral cortex. It does not, however, follow that it is better to have two centres than one. It is conceivable that one-sided development leads to better results in the matter of ability to speak than would be achieved by the working of two centres. On this point opinions are very divided; but R., who has never been trained to use a particular hand preponderantly, and who has used her two hands nearly indifferently up to her fourth year, has certainly shown no backwardness in acquiring the power of speech. She talks with nearly complete correctness and expresses herself with ease. But then it is not certain that she is really ambidextrous. As a result of training she offers her right hand on meeting or parting. She feeds herself sometimes with the right hand, sometimes with the left—more commonly with the latter. When she "draws" she nearly always uses the left hand, and then has a good grip on the pencil; if now and again she uses the right hand she grasps the pencil awkwardly, and in spite of many attempts to teach her to hold it rightly she has not succeeded in doing so. When she digs, she works first with one hand, then with the other, and seems to get on equally well with either. The predominant use of the left hand for drawing

points, however, to her having a slight tendency to left-handedness.

The infant is at the outset decidedly ambidextrous. Baldwin has performed a large number of experiments in order to clear the matter up, and has come to the result that no sign could be discovered of one hand being used more than the other so long as no great muscular exertion was called for, the object which he presented to the child being held very near to it. In over 2000 experiments the one hand was used just as often as the other. From the sixth to the tenth month, moreover, the tendency to use both hands at once for grasping was twice as strong as the tendency to use only one hand. In 2187 experiments the right hand was used alone 585 times, the left hand 568 times, both hands at once 1034 times. Right-handedness appeared generally as the result of muscular exertion. When the child was obliged to make a vigorous effort to get hold of an object, because it was held at a greater distance, it began in the seventh and eighth months to use the right hand most. In the eighth month the result of the experiments was that the right hand was used alone 74 times, the left alone 5 times, and both hands 1 time. When experiments were made with brightly-coloured objects the right hand was used 84 times and the left only 2 times. In some children, however, there seems to be a period of left-handedness, while later they become right-handed.

According to these experiments there would seem to be an inborn tendency to right-handedness (in the great majority) or to left-handedness (in some few);

and it would seem to be movements requiring a vigorous effort of will which give one hand the preponderance over the other. But that does not prove that it is right to assist this tendency to the one-sided use of the hands. There are many irrational habits. Probability points to its being wisest to train both hands equally, in order, among other things, to obtain two speech-centres, but also for the sake of the hands themselves, and that one may always have a reserve ready in case one hand becomes unusable. The right-handed person is in an ill case when his right hand becomes incapable of work or when he loses it altogether. But if Baldwin's experiments have universal validity, ambidexterity is something that must be artificially practised, while the predominant use of one hand rests on an inherited tendency, which as a rule is strongly encouraged by the educator impressing on the child that the right hand *is* the right hand. However, the whole doctrine of localisation in the brain is contested by some researchers, *e.g.* Monacou, so that it is perhaps too early to found pedagogic methods on the physiology of localisation.

XI

THE CHILD'S GAMES

WHEN the child has acquired the power of walking erect and has begun to talk, it develops its nature more particularly by its play. But what do we mean when we say that a child plays? What is play?

One of the older explanations amounts to this, that the child plays because it needs rest and recreation. But this is a manifest error. It is a mere transferring of the experiences of adults to small children. When grown-up persons once in a while go into a wood and break out into Blindman's Buff or some similar game, such conduct is undeniably an outcome of their need for recreation, and it is rest relatively to their daily avocations. It is a kind of psychical economy, because such games demand little mental work. Probably there is also a dash of reversion to the childlike. Adults who play do more than become "as children"; to a certain extent they really are children. It amuses them. It is like a long take-off for the long jump into the daily work that is to follow.

But the experience gained from the games of adults cannot without more ado be transferred to children. For children do not need rest and recrea-

tion as a set-off to their daily bread tasks—apart from the children who have such tasks. Nor do children "rest" when they play. On the contrary, they "work" till they are ready to drop. When they want to rest, they fall asleep. As soon as they have thoroughly rested in this way, they are ready to get up and work. Thus as soon as a little child wakes, it wants "stockings and boots on, get up to play." Play is the child's work: one cannot therefore reasonably suppose that they play for the sake of rest.

Another of the older explanations of children's play represents it as due to an excess of energy. This again is a somewhat uncritical transference to children of experiences in the life of adults. The reasoning appears to have been of this kind: Children do not "work" like adults, therefore they accumulate a great deal of energy for which they must provide an outlet; and this is found in play. Even though there may be a grain of truth in this train of thought, it is in the main a collection of misunderstandings. Children "work," relatively to their qualifications, as much as adults; they are indefatigably industrious. The only thing is that their work has no economic value. The child, therefore, has no excess of energy to be devoted to play; it uses its energy *in* its play. Besides, the child goes on playing till it is ready to drop with fatigue; that cannot be the result of an excess of energy. As soon as a child begins to get its strength back after an illness, it sets to work playing, long before it has any excess to dispose of.

A more reasonable view of the cause of play is that games are reproductions of the ancestors' work.

This conception is naturally due to the idea of evolution. Just as man, taken physically, runs through a series of stages of development in which he resembles lower animals, the child is supposed to traverse stages in which his play reproduces the occupations of his ancestors. As men, industrially considered, have been collectors, hunters or fishers, shepherds or tillers of the soil, and so on, and as each of these forms of life has necessitated particular inventions and crafts, so each child in a society of high civilisation must be supposed to play itself more or less discernibly through the corresponding stages, so far as it has the opportunity; or at least it must have an interest in the activities which correspond to its ancestors' callings.

This conception is in many respects correct, but still it is not quite satisfactory. Children's games are not exclusively, nor even preponderantly, repetitions of ancestral activities; they are also in large measure imitations of the work done by those immediately around them. At a certain age boys are no doubt keen archers, and so, let us say, hunters or warriors in a hunting tribe, or they are knights, robbers, soldiers, cave-dwellers, etc.; but at the same time they are so many other things, as, for example, engine-drivers or airmen. The fact that their games often resemble the daily occupations of their ancestors or of primitive peoples is not to be taken without further consideration as a proof that the industrial evolution of the race is being recapitulated. The similarity is more often due to the circumstance that children stand on a low psychic level, just like their ancestors and primitive tribes, so that the relatively

simple work of these is the most they can master. The child can, for example, use bow and arrow, but is most commonly unequal to the intricate activities of the civilised adult. But where these lie within the limitations of children, the latter show themselves just as "modern" as grown-up persons; only as a rule they live in a world of imaginary activities, and do not really imitate. For example, when the steam-roller appeared in my neighbourhood, I one day came across a boy dragging an iron pipe after him. Being curious to know what that meant, I gave him a friendly look; he immediately beamed with pleasure and said: "It's the steam-roller." Bless his soul! he was out mending the road.

A fourth theory of children's play, which in a manner completes the one just discussed, is to the effect that children by imitating their forefathers free themselves from certain injurious predispositions. Children fight, for example; and the point of this is supposed to be that they thereby become more peaceable as adults. But experience hardly goes to show that pugnacious children develop into particularly gentle beings. The fact that they no longer fight when they are grown-up may be due to many causes; it may be because the police now join in the game, or possibly because they have become a little more reasonable than when they were children. It is also doubtful whether children who play with tin soldiers or at being warriors are thereby conducted *away from* warlike interests. All other analogies would rather lead us to suppose that the tendencies which are permitted to unfold themselves, and which are even given exercise, develop more vigorously than if they

grew entirely in the shade or were rooted in sand.

This is not to say that there can be nothing in the thought that children in their games grow out of particular bad habits; but it is hardly for this reason that they develop the habits in question. It is more reasonable to suppose that the bad habits show themselves because they are natural and in part inevitable given the child's stage of development, and that they disappear in consequence of the child gradually reaching a higher stage or being educated to give them up.

A fifth view of the causes and significance of play is that it serves as practice in accomplishments necessary to life. That is not so much as to say that children practise the exact forms of work which adults perform; it is their bodily and mental organs and dexterities which are exercised and developed, so that the children gradually master the work of adults. This does not prevent children's games being at the same time now and again a repetition of their ancestors' vocations. Just as the young of the higher animals play, *i.e.* pretend to catch mice, butt, gallop, etc., each according to the nature and life-habits of the species, so the play of children is probably before everything else an exercise of inherited tendencies; and as children's development advances slowly towards the adult stage it is quite natural that they should engage in practice-work resembling the vocational work of their ancestors and of primitive tribes. Such games, equally with "modern" occupations, exercise the organs employed in them and stimulate them to growth and development. Hence organs, and more

particularly activities, which are without significance in the life of adults, may obtain a temporary luxuriance during childhood. But just as certain organs are arrested in their development and only persist as rudiments, so there are types of activity which gradually cease and at last remain an outgrown stage in the development of a human being. The person who observes children's play year after year has thus an opportunity of seeing not merely how they gradually win new territory, but also how the peculiarities special to childhood one by one disappear.

First and foremost the child at play develops and refines its organs of sense. During the first year the sense of touch, particularly in the fingers, is developed with special intensity. We adults are accustomed to gather new experiences through the eye and the ear, and we do not reflect that the sensations in the finger-tips, in the remainder of the skin-surface, and in the muscles are to begin with the chief source of experience. But how could we recognise the form, solidity, hardness, smoothness, and so on of objects unless we handled them? Even the adult often has recourse to his fingers in cases of doubt. The carpenter feels the surface of the wood to see if it is planed smooth. So the little child, without being aware of it, is constantly making discoveries with its fingers—occasionally, too, with the other parts of its body, when it is bumped or scraped.

The organs of sense are thus exercised in children's games, and as by playing the child develops itself in all other directions as well, it is of the very greatest importance that the child should have abundant opportunity for play, by preference at many sorts of

occupations, so that the experience and the practice may not be too one-sided. Therefore, as soon as children begin to show desire to help their parents, they should have this desire satisfied in the largest measure possible. It is clearly of no importance whether a little girl helping her mother to dust gives any real help. The essential thing is that the child believes it is helping and has an occasion to be active—that is, to play. A mother once said to her two-and-a-half-year-old daughter: "Take hold of Mother's dress." The child misunderstood and asked: "Can you walk better that way, Mother?" But the object aimed at was attained. The child was got home, and that in the happy belief that she had helped her mother.

XII

THE CHILD'S POWER OF OBSERVATION

WHILE a child is playing, particularly abundant opportunity is afforded for observing its soul-development; but of course this development is also revealed while the child is otherwise employed.

In the case of the senses, however, it is difficult to follow the progress made except as far as relates to the sense of right and the power of observation in the narrower meaning of the term. When R. was a year old she poked a finger at one of my eyes, as she had often done before; when I then closed the eye she took hold of the eyelid to open it. She wished to see the eye. She prefers to discover for herself whatever is to be seen. When, for example, she has herself discovered a dog, she says *vov-vov* in great excitement; but if some one draws her attention to the fact that there is a dog, she is indifferent. When she was travelling in the country during the summer holidays at the age of a year and a half she was immensely taken up with everything she saw through the carriage window. She called horses, cows, and all other animals *vov-vov*, and these fascinated her most; at any rate, she displayed interest in them, but not in houses, woods, etc. When she had reached her

destination she saw for the first time smoke rising from a chimney, pointed incessantly up at it, and gave vent to peculiar exclamations of warning, as if she were uneasy about what the smoke might mean. Shortly afterwards she came to the sea, which was in agitated movement with foam on the waves. She pointed continually at it and said repeatedly *é-é*. Everything else which she had seen that day on her way to the sea, made to all appearance not even approximately the same impression on her—neither the wood nor the stretch of heath nor the sand in which she had lain and grubbed. All this she had looked at without visible sign of perceiving anything that had a value of its own. The sea, on the other hand, was manifestly something peculiar and surprising, chiefly, it may be, because of its motion. A few days later she noticed the clouds in the sky, pointed to them, and said *dé-dé*. She further discovered the weather-cock on the house. When she was one year and ten months old she discovered her navel one day in her bath; and barely a month later she found the moon and said: "Light up there."

After R.'s second year her power of observation grew rapidly, for the reason, among others, that she looked at things with more attention. At the age of two years and two weeks she could, as a rule, see immediately what animal I was engaged in drawing the moment I had drawn the ears. She sat intently waiting till the distinctive feature appeared, and then said rapturously *øf, vov-vov*, etc. Fourteen days later she stretched out her hand to the handle of a door in order to come out; she must therefore have seen that the door is opened by means of the handle. At two

FIG. 2.—R. (age 9 months) investigates the balls on her new playboard.

years and one month she looked at the sky one day, pointed to the clouds, and said, first "Cow," and then "Fish." Apparently she thought they looked like cows and fishes, just as do the adults of primitive tribes. In the oldest religion of the Hindoos, for example, it was taught that the clouds were a cow, from whose udder rain streamed. The increase in attentiveness was shown by her very clearly one day when she was two years and five months old. She saw a fly, followed it for a long time with her eyes, and said: "Oh, see, there is the little fly"—"Oh, where are you gone?"—"Now you're there," and so on. One day a little later, when she was sitting with her mother and looking in her eyes, she said: "See, little girl in Mother's eyes." At the age of two years and eight months she was out driving and had a whip in her hand. She allowed the whip-handle to trail behind on the road, placed the thong to one ear, and said: "Listen, Father." Clearly she had observed that sound is well heard in this way.

When three years old she saw in a churchyard a statue of a little child with folded hands and closed eyes. She asked: "Why does he shut his eyes?" She forms a very vivid image of what she sees. One day she was looking at pictures in a shop window, where, among others, was one representing a man casting a shot. She imitated his arm-position and said: "Why does he do so?" Later, she saw in another window a picture of a young man with uplifted hands, and said: "He does so," imitating his attitude. When R. first saw her baby sister, she said: "She hasn't any teeth." She therefore must have noticed the fact. She went on to ask: "Who's going

to put them in?" And said: "They'll come of themselves." She examined the little sister very closely, and said among other things: "Where's her thumb gone to?—Oh, it's there!" At the age of three years and three months she saw some crows on the ground and said: "Look, they're like pigeons." A little after she added: "They are black and white" (grey). In the same month of her age she was looking at the pictures in an animal-book. Coming to an uncoloured picture of a water-beetle, she said: "It's a water-beetle; it's the same as that," and then pointed to a picture in colours. But one day when we had sago soup her power of observation was at fault; for she said: "Look, there are little *holes* in the soup" (meaning the groats, of course). Another day she did better. She saw a lady hopping with a stone and tried to do the same, but used both legs. The lady said: "No, look here and I'll show you how," and then hopped again. R. watched her attentively for a moment and then said: "Yes, you have one leg up under your cloak." She began to measure of her own accord when she was barely three years and four months old. One of her feet was lying against one of mine, and she said: "Your foot is bigger than mine." In the Zoological Garden, while we were looking at the monkeys, she said: "That one has a hand." A few days later she was singing, but stopped and said: "It's the tongue that's singing." At three years and four months she saw some round, white clouds, and said: "Look, they are like little lambs; they have heads." When three weeks older she saw the end of a syringe put into some water, and asked: "Mother, why does that stick *break* in the water?"

At three and a half years she was in a train looking out of the window, and asked: "Mother, why are the trees riding too?" She observed their apparent motion and took it for real, just as before Copernicus the apparent motion of the sun was regarded as a real motion. When a month older, she got hold of an ox-eye one day, and said: "It's like a daisy." She went on to ask: "Why has it got the little bowl?" (the involucre). Once when we went into the street after it had rained in the night, she noticed the mud sediment in the gutter, and asked: "Who has made these heaps?" A little later, when she was digging and making mud pies she was surprised to find the pie turned out whole. Beaming with joy, she called out: "See, Father, it's turned hard." The last time the earth had been loose, because of drought, and I explained to her that it had now become wet and could therefore hang together. Thus on that day, by her own observation and a little help, R. came to understand the occurrence of little mud-banks in the gutter and the bearing of moisture on the earth's suitability for mud pies. We may naturally put down as a next step the fact that she afterwards in dry weather herself hit on the idea of watering the earth. In the same way she helped herself another day when her mother was tired of skipping with her. She tied the rope to a bucket, and said: "There, little bucket, now we'll jump." Thus the child can observe, gather experience, invent, refresh its memory, and so on, while playing and by playing. The day after the walk referred to above, R. noticed that the road was dry again, and asked: "How does it get dry?" *i.e.* what becomes of the water? And I explained it to

her. She made one of her most delicate observations two days later, when we were looking at the statues in front of the Glyptotheca. When we came to the Centaur carrying off a woman, she said, with great emotion: "See how his (her) fingers are," and spread out the fingers of her right hand to imitate those of the woman; then, however, she added: "He (she) has no thumb." We then went round to the other side of the statue and found it.

XIII

THE CHILD'S THINKING

THOUGHTFULNESS, the power of deeper thinking, is strongly developed after the child's first year. But if at one moment we wonder at a little child's thoughtfulness, we may be surprised the moment after by finding how grossly it misunderstands, how thoughtless it is. When R. was a year old, she understood that her parents ate; for she said *ma-ma* of herself. But a child's thought is, of course, not a clearly conscious act; though something of that nature does take place. R. displayed much more thoughtfulness three months later. She had been shut up in one of the rooms by means of a wooden grating, kept closed by means of a fastener on the side away from R.'s playroom, and so invisible to her. All the same she had noticed that it was there people opened the grating for her; and one day she reached a hand over and took the fastener off. In a similar way she managed for herself on another occasion. One day, when she was one year and eight months old, she had her reins on, and they caught fast on a stake which was standing askew. At first she pulled vigorously at the reins; but as that was no use, she turned round, saw the stake, and lifted the reins off. She was thus no longer helpless

in such a situation, but was able to understand the cause of things going wrong and to help herself over the difficulty.

As a rule, unfortunately, people help children when they have got into a little trouble of the kind illustrated; but that is wrong. While the child noses round and plays, it exercises its thoughtfulness; and it is of the very greatest importance for its unconscious self-education to allow the child to help itself as much as possible. In that way it is compelled to reflect and learns to pull itself through. For example, R. has practically never been helped to her feet again after falling. But she has fallen very seldom, chiefly, no doubt, because she was allowed to teach herself to walk. If after all she *did* fall, she was allowed to lie and grovel and collect her wits until she got up by herself. Partly on this ground, as it is reasonable to suppose, she has never made much fuss about a tumble. The to-do grown-up people make when a little one falls is assuredly very often the reason why the child too does not let the incident pass unnoticed, but proclaims its misfortune in shrill tones. Even children understand that emotional outbreaks are infectious. When R. was three years and three months old, her mother said to her: "I was so afraid." R. then answered: "You mustn't be afraid, Mother, because then I shall be afraid too."

Interesting testimony to the value of a child helping itself is supplied by R.'s procedure on finding herself in a difficult situation one day when she was one year and nine months old. She was standing on a somewhat high stone step and wished to go down into a

garden, but was afraid of the jump. She stood a little while, apparently at a loss, but then went to the door-jamb, took hold of it, and with this support slid down carefully alongside the wall. A quarter of an hour afterwards she took it into her head to crawl up on to the step, and then wished to come down again. But the second time she considered for only a moment, went to the door-jamb, and let herself slide.

This little episode may possibly seem to be without much importance; and yet it reveals much which is of value for rational education. It shows, in the first place, that the child comes to reflect when it has to manage for itself. If a friendly nurse had appeared, ready to lift the little girl down, she would never have begun to consider how to solve her problem. We see, in the next place, that the child fixes the experience it has gained for itself by seeking a new opportunity of overcoming the same difficulty. It is, indeed, hardly probable that the child crawled up again *in order to* descend once more; but she did crawl up, and had to come down again. Thus play is, among other things, a means of going through experiences again and again, of fixing impressions, of practising accomplishments. We see further from the incident related that a difficulty makes a deeper impression than the more transitory experience which a child gains if some amiable person is ready at every turn with a helping hand. In such a case the whole incident would probably have passed through R.'s head without leaving a trace, so that on the next occasion of having to go down the step she would have been as helpless as at the first time. Finally, the child's independent conquest of the difficulty had

in all probability the further effect of strengthening her self-confidence, even if this was not immediately discernible. Too much nurse makes man a child throughout life.

When R. was about two years old she understood that her parents were going out when they put their outdoor things on; for she said, "Drive," meaning, "Now we shall go out for a drive"; but she made the mistake of inferring that she was to go too, although she had no outdoor things on. But when her mother put her things on another day, she said, possibly the wiser for her mistake: "Things on, drive, town," that is: "May I have my things on and go out for a drive to town?"

In the third year we begin to notice a deeper kind of thinking coupled with comprehension of causal relations. When R. was barely two and a half years old, she was one day out for a picnic in the woods, and was tethered to a table by means of a stick pushed through her reins looped round the table-leg. She tried several times to pull herself free; but when that was no use she turned round, looked at the stick, drew it out of the reins, and handed it to her grandfather, its rightful owner. At two years and seven months she dropped a box out of her bed on to the floor, and her mother made as if to pick it up; but R. said: "You mustn't pick it up, Mother, because R.'s going to sleep." One day she knocked her neck, and some one said to her a little thoughtlessly: "Blow on it"; she answered: "I can't do that, because it was behind." When R. was rinsing her fingers and a little water dripped from them, she said: "They are dripping; that's because there's too much water."

When two years and ten months old, R. saw a picture of a wolf with a hood on (Little Red Riding Hood), and said: "Why has that wolf got a hood on?" She at once answered herself: "It's because it's so cold."

One evening at the age of two years and eleven months she saw a dress hanging on the bedroom wall and possibly felt a little uneasy. When some one came in to her she said: "I thought there was a little girl, but then I thought there wasn't a little girl, because it was only a little dress." Another evening she certainly did get frightened by her father's trousers, which were hanging on the wall; for she said: "I mustn't be afraid; it's only Father's trousers; there aren't any legs in them." We need not dwell on the reflection that no great danger would have threatened if there had been a pair of legs in the trousers. The point is that her imagination had played her a trick by converting the trousers into a person, and that she rose above the illusion by perceiving that they were empty.

At the age of nearly three years she revealed a much subtler power of thought. She was to have her knickers on, and the maid wanted to help her; R. said, however: "Mother is to do that." "Yes," said the maid, "but I have the pin" (the safety-pin for fastening the garment), "so Mother can't help you." But R. answered: "Yes, but you can give Mother the pin."

We see that it is necessary for educators to familiarise themselves with the fact that the child thinks really well at an early period, otherwise they make mistakes which land them in difficulties. For example, R. was crying one day and was promised a plum if she would stop. She immediately ceased crying, and said: "Yes, then I can cry when I've got

the plum in my mouth." The following trustworthy story has been told me about a three-year-old girl. She was ill-treating two dolls, and her mother took them away, saying: "Now you shan't have them again until you're big." A few days passed, and the child while at dinner sat poking at her food without eating. The mother became angry, and said: "Get on with your dinner, will you! A big girl like you can't sit and mess about like that." The child asked: "Am I big?" "Yes, you are," was the answer. "Then may I have the dolls?" said the child.

In R.'s fourth year the investigation of causes became still more prominent than before. When she had just completed her third year she looked at her doll's eyebrows, and asked: "Why has it got that there, Mother?" but found an answer for herself: "It's perhaps so that it shan't be cold there" (just as the hair on the head keeps it warm). A week later she said from within her bedroom: "Mother, I'd like a cup of chocolate if it isn't hot now." A month later, when she had new pillows and sheets for her bed, I said: "Now Father will lie in it"; but she answered: "No, it's too little." One day a cork was drawn from a beer-bottle, a thing R. had not seen before, and then replaced loosely. R. said: "Why do you take the cork out and (put it) in again?" She understood the apparent unreasonableness of the act, but failed to grasp the fact that the cork now fitted only loosely in the bottle.

People are much too prone to overlook the child's strong craving to get at the reason of things. Of course this craving varies very greatly and fashions itself in accordance with the whole being of the

child; but it is there, and it should be welcomed as generously as whatever else is valuable in the child's nature. In the case of R. it has been very prominent; her reasoning powers are roused to action every moment. For example, the maid comes with her oatmeal porridge, but is asked to bring some stewed apples to spread over it. R. says: "Because then we (Mother and I) like it better." One day after coming home I had R. riding on my shoulders, and I said: "You must have your sandals on"; but R. objected, saying: "There's no need for that, because there can't come any holes (in my stockings, while I am sitting) up here." A day or two later, on seeing some felled trees and sawn-up branches, she said: "They have to be made smaller, else they're too big." She had a habit of jumping from the last step on to each landing when we went downstairs, and her mother used to say: "Jump" every time when the jump was due. R., however, remarked: "You needn't say it (jump), because I *shall* jump (all the same)." When R. was three years and three months it was observed that she had got into the habit of going about with her mouth open, possibly because of polypi, and something was said about it. R., however, said: "I go about with my mouth open because else I can't talk." Against her better knowledge, no doubt, she was giving a presentable reason. A month later, her little sister had been a nuisance to her, and she said in consequence: "Now I'm going to blow little sister away so we shan't have any little sister." "Why so?" I asked. "Why," she answered, "because she's a little naughty, she cries a little, and then she's to have her bottle, and then she shan't (won't) have her bottle;

and we can't go on with it." When she was about three and a half I told her part of the story of "The Tinder Box."[1] When we came to the third dog, she said: "It must have been a big apron (the witch had) if so many dogs could sit on it." She thought mistakenly that the two first dogs had remained sitting on the apron; but that is without importance. Her reasoning: an apron on which there is room for three dogs must be big, is quite good. A month later she was very anxious to know "why they make fingers." "We could use our arms, couldn't we?" She was given the answer: "We shouldn't be able to take hold of things so well." "No," said R., "I couldn't dig so well with my spade." We see, among other things, how in order rightly to understand the point, she chose a concrete instance; by the help of that she realises in good earnest the usefulness of the fingers. Thoughtfulness is further evidenced by the following questions: "What does the spider eat?" "Flies." "Can the spider fly?" "No." "Well, then, how does it get the flies?" On the same day she was severely logical in an amusing way. We passed a conveyance with a horse in the shafts, and she asked: "What is the little horse called?" "An Icelandic horse." "What are the others called?" "The big fat ones are called Jutland horses." "What are the big ones called that aren't fat?" At about three years and eight months she found a little black bead on the floor, and asked: "Where has this come from?" I answered: "Perhaps it has come from your Indian shoes (which have many beads on them)." R. looked at her shoes, and said: "No, there aren't any

[1] From Hans Andersen.

FIG. 3.—S. in the best of health (age 1½ year).

black beads on them (and therefore it is not reasonable to suppose that this one came from them)."

Not seldom the little child's thinking takes the form of objection to or criticism of what is said to it, whence it is apparent that at an early date the child entertains *doubt* as to other persons' trustworthiness and infallibility. It may be true that it is not until from the seventh to the tenth year that the child begins to express its first indefinite doubt about *ideas* previously accepted without doubt or explanation; but this applies only to the child's ideas on particular matters, *e.g.* its own origin, or the creation of the world. Doubt itself occurs at a far earlier period, even though the child has no external reason whatever to be on its guard. R. has always been accustomed to be told the truth as far as that was possible, and she has never caught any of her guides in an untruth, even though answers to her questions are of necessity somewhat adapted to her years. All the same, she displayed doubt at the age of only two and a half years, and has done the same many times since. I had had a knife out, and this had been laid on one side. R. asked: "Where's the knife gone to?" and when I answered quite correctly: "I don't know," she immediately said: "Yes, you do know." Doubt cannot be expressed more clearly. When she was about two years and eight months old she was out in the country, and asked: "May I see the pigs?" Her mother said, quite truthfully: "There are bicycles in the way"; but R. was not to be put off in this way, and said: "May I see the bicycles?" This may have been a mere trick by which she meant to get her wish, thinking that if

she got so far as the bicycles she would see the pigs too; but most probably it was a manifestation of doubt. At two and three-quarters years, on the other hand, she displayed doubt in a perfectly unambiguous manner. She wished to look at a particular picture-book, and on being told, "It's gone," she answered: "I'll go and see if that's true." It *was* gone. On R.'s third birthday her mother said to her: "It's raining"; but R. looked out of the window and said: "No, it's dry in the street." Her mother, however, thought she saw drops on the windows, and said: "Yes, it is raining; there are drops on the pane." But R. looked at the pane, and said: "No, Mother, there aren't any drops." A month later she asked for a bag to play with, but her mother said: "I haven't any (empty) bag." Thereupon R. went into the bedroom, emptied a bag of some pieces of soap, came back with it, and said: "Here's a bag." She must have seen this bag in the washstand drawer, and was therefore within her rights in doubting her mother's inability to produce a bag.

Doubt is so often justifiable on the child's side, even if it is unreasonable from the adult's standpoint, for the two think differently. So it was, for example, one day when R. was jumping on the sofa. I said to her: "You mustn't do that," and she evidently found this unreasonable, for she asked: "Why (not)?" When I explained to her that the sofa couldn't "bear" it, she said: "Yes, but it doesn't say anything (and therefore isn't hurt)." One day when she was on a visit to a relation and was looking at pictures, some one said about a picture of a seal: "It's a fish," but R. objected: "No, it's a seal." On another occasion she showed

more thought in her criticism. She wished to go to the clinic to see her mother and her little sister, but her aunt said, as was true enough: "Yes, but Mother is ill (and so can't bear your visit)." R. answered, however: "Yes, but little sister is there with Mother (and so I may be there too)." When she was answered: "Little sister is ill too, and has to be with Mother," R. objected: "Yes, but Father isn't ill (and he's in there, so I can be there too—she saw me present every time she was there)." When she was three years and three months old, she was looking at pictures in an animal-book, and when in answer to a question of hers I answered that a certain picture represented a grasshopper, she said: "No, it isn't." "Yes, it is," I insisted. But R. would not let herself be dictated to, and said: "You didn't say so before." When we saw on the next page a grasshopper with folded wings she recognised it at once, and said: "That is a grasshopper."

Probably on the former occasion I had not shown her the picture with outspread wings, but only the other, and so she was justified in thinking that only the second one represented a grasshopper. One evening a month later R. was to have cod-liver oil given to her by her grandmother, and said: "They (Father and Mother) say that cod-liver oil tastes nice, but that's not true; it doesn't." A month later still I was sitting reading a book, and R. wished to look at pictures in it. I said, which was quite true, that there were no pictures; but R. suggested: "Let's turn over the pages and see if there aren't any pictures." At three and a half she one day asked her mother: "Why has Father long hair on his arms, and I short

hair, and you none." She was answered: "Because Father is a man and Mother a woman and you a little girl." But R. objected: "Yes, but why has L. (the maid) long hair then? (she being a woman like Mother)." When a little older she saw a cat, and asked: "Why has this pussy got claws?" She received the answer: "It uses them to defend itself with," and this was more fully explained. R. asked: "Has the dog claws too?" "No, it uses its teeth to defend itself." "Yes, but so has the cat got teeth." In the afternoon she saw a dog, and said: "The dog *has* claws, too; I saw some on that big dog there." Another time R.'s mother said: "Look at that big, horrid spider"; but R. answered: "It's big, but it isn't horrid."

In the case of other people's children, that one does not have to do with every day, it is naturally a more difficult thing to catch expressions of doubt and criticism; but now and then I have had that good fortune, and occasionally trustworthy observers have related their observations to me. One day I was walking behind a father and his little son, and when the animals in the Zoological Garden growled a little in the dusk, the father said: "Now the animals are going to bed." The boy found that quite reasonable, and said "Yes." But then the father said thoughtlessly: "They are pulling their quilts over them." The boy was down on him in an instant, and objected: "But they haven't any quilts, Father." In another case a boy of from three to four years expressed doubt in an amusing manner. He had been given a toy watch that clicked when it was wound up. He held this watch close to my ear, and said rapturously, while

winding it up: "It ticks (like a proper watch)." But then he put it to his own ear, and said: "Doesn't it tick?" He was thus himself in doubt about the ticking, while he required me and others to have faith. In this respect he does not stand alone. The following tale was told me about a little three-year-old girl by her mother: The child had not kept to the truth, and her nurse had said to her: "You'll get a black mark on your forehead if you don't tell the truth." But the little girl answered quickly: "No, I shan't." "Yes, you will," said the nurse; but then the child said: "Mother, may I borrow the looking-glass?" And when she had satisfied herself that there was no black mark, she burst out triumphantly, turning to the nurse: "Now you can see you were making a fool of me."

This is the idea that one should be on one's guard against rousing in the child, but parents and other educators much too often give little children ground to doubt not merely the fact concerned, but also the truthfulness of the person asserting it. For example, I once during a journey heard a mother say to her little girl: "You mustn't look out of the window, or else you'll fall out of the train." If one lies to a child, one teaches it to lie. If one is unreliable, the child loses its faith in its parents' truthfulness.

In spite of its considerable power of thought the child nevertheless often falls into the most remarkable misunderstandings. One moment it is precocious; the next it is a little donkey. When R. was out driving, at the age of three and a half, it began to blow a little, so that the leaves of the poplars rustled. "Listen, Father," she said, "the trees are blowing."

She confounded cause with effect; very likely because she had not yet observed that wind is air in motion, but had observed that things move when they blow. Later, when she came to the water and saw foam receding from the shore, she said: "The foam's afraid of R."; and one day, on shutting her eyes, said: "When R. shuts her eyes, the sun doesn't shine on R."

The most frequent source of the child's misunderstandings is to be found in its inferences from rough analogy. As a rule it thinks as if it used the formula: A is like B, therefore A is B. One day, at about two years old, R. saw a girl who is called "Pip" in a downpour of rain wearing a hood. Afterwards she gave the name "Pip" to every girl she saw so equipped. Every old man with a big white beard was "grandfather" to her, including a portrait of Darwin. One day her mother had a tear in one eye. R. saw it and said: "Mother long nose on her eye." When she was about two years and eight months old she fell in the road and cut one of her knees superficially, so that it bled freely. When she saw it, she said: "R.'s *spilling*, but that doesn't matter." She meant, probably, that it did not injure the carriage. When she had been washed and bandaged, she said: "Is it bad, Father?" Clearly she had no instinctive fear because she bled. When on towards three, she saw a lady lift her feet rather high while performing some dancing steps. R. imitated the lady, and said: "R. waves with her legs." One day when she was a little over three and did not feel quite well, her mother said: "Perhaps little R. has worms in her inside." R. answered: "Then we must take the head off, and

look inside; but how shall we get it on again?" She was led to this train of thought by her experiences with a doll. This doll had lost its head and R. had looked inside its body; but my attempts to fasten on the head had not proved successful. Hence R.'s uneasiness lest there should be the same failure with her head. A little later, towards the New Year, her mother was rinsing a goose, and R. asked: "Don't you think it'll catch cold, Mother?" A week later I drew a giraffe for her and made spots on it. R. asked: "What are these?" and I answered: "They are spots." But R. said: "Then they'll have to be washed off (like spots on clothes)." One day she saw a new shoot springing forth in the middle of a hyacinth, and said: "There's a little flower coming out of its *stomach* (by analogy with the doll's 'stomach')." At the age of three and a third she was in the Zoological Garden, and when she saw the baby elephant she said: "It can eat *Øllebrød*[1] (that is, it is little like R. and can eat *Øllebrød* like R.)." One evening when we had been to a concert and R.'s mother came in to her later than I did, R. said: "Oh! I didn't think you were with Father. I thought you were in the *playground* (that is, out amusing yourself where R. amuses herself)." A few days later she again thought of her mother as analogous to herself. Her mother had picked up a toy brick, which she was going to put on one side. R. saw that, and said: "You mustn't play with one brick, Mother. Here's another."

When she was three and a third years she saw

[1] Soup made from rye-bread and beer; often given to children.

the picture of little Klaus and big Klaus, when the one horse is killed, and said: "Mother, will you show me some glass (*i.e.* some fragments) where the horse has fallen?" She had learnt that a glass breaks in pieces when it falls. A week later she saw some pieces of paper blown against each other, and said: "They're fighting (like boys in the street)." When about three she saw a picture of a gentleman and a lady. The lady was laughing, and R. said: "She's so glad because she's got a father with her." In the woods I showed her two chaffinches, and said: "See, there's the father and there's the mother." R. asked: "Where's the little R.?" A month later she saw a picture of a steamer with a smoking funnel, and said: "That's a train. Why is there a train on the water?" We came afterwards to a picture of a negro, and she said: "That's a chimney-sweep, I think." When one day she saw negroes on horseback in the street, she called them chimney-sweeps too. When she was about three years and eight months, I showed her the Town Hall, and said: "See, there's the Town Hall." R. looked towards it, but said: "There are two Town Halls," pointing towards the Palace Hotel. When she was three and three-quarters years old, her mother said to her one day: "Father's at school." R., who during the summer holidays in the country had learnt that children go to school, said: "Has Father got little, then?"

This form of reasoning by bold analogy comes into special prominence when the child plays and endows its toys with life; but here the child's strong imagination co-operates.

Imagination is not a special faculty of the soul,

but merely a special form of thought in which ideas are joined together freely, arbitrarily, without agreement with reality, or at any rate so as to form new combinations. Without imagination there can be no new construction in art, science, invention, or the practical business of life. It is therefore of the very greatest importance that the child's imaginative-life should not be pruned but strengthened. The child's imagination is, however, different from that of the adult, at any rate from his valuable, full-grown imagination. The latter is always more or less ordered under definite rules and within definite limits, especially in science, technics, and practice, but also in art. The child's imagination, on the contrary, has most often a quite fantastic character, outside all measure and meaning. It turns Nothing into Something, and lends language to stocks and stones.

R. showed the first workings of imagination when she was one year and five months old. While busy playing, she pretended to pick up something lying on a footstool, came with it, and laid it in my hand. She then took it up again and put it back on the footstool, immensely taken up with the game, for the possible reason that there was something that was not to be broken. Although she had absolutely nothing in her hand, this game amused her so much that she repeated it on the following days.

R. treated all her toys as if they were living beings; and in this she presented an interesting resemblance to primitive peoples and our remote "savage" ancestors. Primitive folk assume, namely, that there are souls in trees, stones, hills, mountains, animals, and so on. They regard their shadows as

souls, think that breath is soul, or that their reflection in water is their soul. In dreams they think themselves out on adventures, hunting, fishing; sometimes they meet souls of the dead and talk with them. The soul comes to visit in the grave the body which it has abandoned; food, drink, weapons, and other things are therefore laid in the grave in order that the soul may not lack hospitality. In amulets or fetishes they assume the presence of souls or spirits which aid the person carrying the sacred object.

It is supposed that this endowing of nature with soul has its main origin in the fact that primitive people regard dreams as palpable realities equally with their waking experiences, for which reason the soul must be capable of roaming abroad by night and talking with the souls of the dead. But where, then, are they during the day? Naturally in the living man, if it is a "living" soul. But the souls of the dead must quarter themselves somewhere or other, say in a remarkable tree, or a peculiar stone. But this explanation is hardly in all respects satisfactory; in any case, the little child comes in a much simpler way by its habit of giving souls to things. It knows nothing of dying or of the soul's departure with the last breath. It does not "interpret" its dreams, even if it does take them for realities. It does not conceive its reflection as its soul. The little child quite simply conceives things as analogous with itself. In so high a degree is the child the centre of existence in its own ideas of things, that the objects it plays with become children when it has an object in their being persons, or, at all events, something alive. But the things are always something more than the

realities known to us adults; and the least trifle may serve as a springboard for the child's ardent imagination. When R. was a year and a half old she was given a bucket and a spade. She did not at once display joy to any surprising extent, but after the lapse of a few hours she was immensely taken up with her playthings. In the evening she wanted to have them with her in bed; and on the following evenings she made it known by certain peculiar manifestations of uneasiness that the bucket and spade were to be in bed with her. At about one and three-quarters year she was playing with a doll which she called "Boy." For example, she laid it in a bowl, and said: "Boy asleep." A month later she had been given a bear. This was put to bed in a cigar-box with a pocket-handkerchief over it; and R. said: "Cover on. Bear asleep." It was a real little girl that was properly tucked up by her mother. Remarkably enough, it is just this business of going to bed that seems to have made the deepest impression on R., for that is the game that all her playthings are used for, whereas she never, for example, gives food either to her dolls or to her other playthings. At that early stage it was indifferent what the object really was; it became alive all the same. At the close of October I gathered some horse-chestnuts for her. When she came home with them, she laid a chestnut in a handkerchief and sang a cradle-song to it. But her doll was a little R. in a special degree. She laid it down to sleep, let it walk, placed it on a chair; when we ate, it had to be with us at table, and R. said: "Dolly food." Its nose was nicely wiped

with a pocket-handkerchief. Afterwards when the doll "walked" about on the floor, R. said: "Dolly playing"; and in the evening: "Dolly night." A day or two later the doll was lying asleep. When R. came to her she said, with great emotion: "Dolly, oh, shame!" meaning that the doll had wetted its bed.

When she was two years and one month old, this prominence to make rough analogies showed itself in her treatment of a little dog. She overflowed with friendliness towards it as if it were a little human being. When she obtained a bone for it, she offered it with the usual polite formula, imperfectly pronounced in a most insinuating voice. When the dog then walked after her for a moment, she became a little anxious, but said: "Dog sleep," as then it could not be up to anything more than R. herself when asleep.

On the occasion of the visit in the course of which she had seen the dog, she had ridden in the train. A few days after, therefore, she sat down on a chair with her doll on her lap, and said: "Train"; a moment after she went to the window, let the doll look out, and said: "Peep." The doll was looking out of the train window.

The first touch of realism in her imagination was observed when she was about two years and two months old. She gave her doll food; but when this turned out to be to no purpose, she ate the food herself. She was evidently learning by experience that the doll was not fully and entirely alive. But at the same time she showed her doll pictures, and said: "What is it, Dolly?" She turned over the pages and explained: "See, Dolly, pig—hen," and so on.

Then she "drew," and, turning round to the doll, said: "See, Dolly, draw girl."

A new game made its appearance when R. was two years and three months old. She played shop with her mother. They packed some bits of paper in horns; these were sweets. They were packed with much animation; and it was a particular joy to open a horn and find a "sweet." Evidently the joy was not in the least impaired by the fact that the sweets were made of paper—though children are interested first and foremost in what they can eat. Imagination permits everything. R., for example, rolled up a piece of paper, and immediately it was a doll. She thereupon made another, said: "Oh, look at the little Pip!" laid it under a quilt, and said: "Hush, Mother, Pip's asleep." When she was two years and five months old even a dress became a living thing. She sat and stuck a hairpin into her dress, and said: "It doesn't hurt R.'s dress." Conversely, she turned herself into a dog a few days later. She had twisted one of her feet, and it hurt her when she walked. She did not complain, however, but said: "R. rather a little dog," and started to crawl. Even if this was first and foremost an expression of her inability to walk, it yet shows how small a difference there was in her ideas between herself and a dog. She even ascribed a certain independence to the parts of her own body when at the age of about two years and eight months. As already related, she had knocked one knee, and one day when the wound was cleansed she said: "Oh, the little knee; it shall lie with R." Chestnuts were at that time still living things; for one evening, placing a

box of chestnuts on a chair, she said: "They'd like best to sleep in Mother's chair."

Her comprehension of the difference between reality and imagination was, however, waking to life when she was about two years and eleven months. I saw her standing some pencils on their ends, and said: "Look there, R.'s building houses." "No," she answered, "they're pencils. But they've got to be houses." A few days later, things had gone wrong with the doll's humanity; for R. said: "She can't do that" (namely, wave her hand), "and she can't do that either" (namely, nod). "But she can sit here," and thereupon she placed the doll on a chair. Later the doll had a smacking, after it had gone to bed with R. It was possible, therefore, for it to be naughty; but then this is a favourite game, presumably because it gives children a chance to feel their power.

I observed an amusing testimony to the strength of the child's imagination when R. was about three years old. She was busy "building houses" with pieces of rye-bread, and said: "I'm building houses." The maid asked, however: "Can that be done with pieces of rye-bread?" And R. said: "Yes, because they're bricks." Thus the pieces of rye-bread were first transformed into bricks and then these into houses, all with perfect logic on the child's principles. But that was imagination to the second power.

Although the sense of reality grows as the child becomes gradually older, there were still in R.'s fourth year alternating examples of purely fantastic imagination and examples of imagination interwoven with realism. At three years and three months she rubbed her hands, as when one washes, and said:

"I'm washing my hands. I *call* it soap." Fourteen days later her grandmother said: "Why haven't you put your child's (the doll's) dress on? Your mother puts your dress on." R. answered: "Yes, but I get cold and she doesn't." Here is a still clearer recognition of reality. But eight days later R. ran round the rooms with a little "chicken" of wadding, which she held dangling in the air before her, and said: "Now the little chicken's flying." A day or two later she played with her doll and wheeled her into the passage, saying: "You mustn't be afraid, little doll." At three years and four months R. sat on a table and watched her mother who was dancing round her. Suddenly she said, very excitedly: "You mustn't tread on the Christmas tree"; but no one had said anything about dancing round a Christmas tree. Four days later, R. came home and played "puffers" to and fro in the rooms, wearing at the same time a paper hat which transformed her into a boy. She was thus a train and a boy simultaneously; and when she was tired she came to me, sat on my lap, and asked: "May the puffer feed with you?" When she was nearly three and a half I observed a very comic example of imagination without thought. R. drew a picture of a wolf that I was to be afraid of when she showed it me; and I duly was. But then she went on continually drawing new wolves, instead of frightening me with those already drawn; and when I had to shave, and therefore said that I couldn't be afraid till I had finished, she readily fell in with the idea, and waited till I had finished before showing me a wolf. Thus she did not see either that I would have to be equally afraid whether I shaved

or not. When she was three and a half, realism came again into prominence. She wished to do some cutting out, but said of herself: "I mayn't borrow a pair of scissors, but then I can find some sticks, and then they can be scissors." We see how she satisfies her wish in imagination, although she well knows that sticks are not proper scissors. This capacity is retained for a long time.

Things went badly with the doll when R. was about three and a half; for one day while she was playing with her doll Lise, and treating her in every way as a little human being, she suddenly said: "She can't talk, because she isn't alive." At this date she had come, quite by her own judgment, to realise that the doll is not alive; and after that we may suppose it is no long step to discover that she herself has made it alive, and so to become aware of her imaginings. At three years and seven months she said one day: "When little sister is big and doll Lise is alive there will be three of us to play." She was thus clear that the doll was not alive, but had some hope of an amendment.

Consonantly with its resemblance to primitive peoples, the child conceives its dreams, its reflections, and its shadow essentially as they do, though the interpretation is slightly different.

There were signs that R. could dream when she was no more than forty-five days old. One evening she uttered quickly a number of uniform sounds, one after another: hø-i, hø-i, hø-i; and the best explanation probably is that she was "talking" in her sleep. About one month later she laughed rather loudly while asleep, and this too points to her having been

dreaming. Of course no information as to her conception of dreams was to be picked up until she could talk; but it then appeared that she regarded her dreamland visions as real in the same way as her waking experiences. When she was three years and three months old her mother asked her whether she had been awake in the night, and R. answered: "Yes, but then there came an old woman. So I shut my eyes, and then she wasn't there." Clearly, she had seen an old woman in a dream, had waked, and then fallen asleep again; but she showed that she believed there really was an old woman.

She saw herself for the first time in a mirror when about one year and one month old. She laid the mirror on the sofa, held her face close to it, and pressed her mouth against it. She then laid one cheek on the mirror caressingly. Evidently she could see that it was a human being that she was fond of there in the mirror. Later she turned the mirror round to see what there was behind it; but she gradually became familiar with the fact that it was R. she saw in it. But long after she had acquired this familiarity, she yet came one day, when over three years and one month old, to reveal the fact that she had not yet got out of regarding the reflection as a person. She had had her hair cut and then done in a way that reminded her of a friend of her own age; and when she looked at herself in the hairdresser's mirror after the process was over, she said "E.," her friend's name. I once observed something similar in the saloon of a ferry-boat crossing the Great Belt. A little girl, about three years old, was standing looking into a mirror; she pointed to it, grasped at the reflection of her

hand, and said: "Ellinor." When I asked the mother if her little one was named Ellinor, I received the interesting information that this was the name of the child's playmate. That little girl could not recognise herself in the mirror, though she was quite unusually dressed in a stone-grey cloak with a very light grey collar; instead, she took her image for her playmate.

R. first discovered her shadow when she had just completed her third year. While running to and fro in a long passage, she said: "I'm playing horses with a strange little girl." This was her shadow. In the Zoological Garden I once saw another little girl spinning round like a puppy trying to bite its tail; the little one was making vain endeavours to get her fingers into her shadow.

These observations show that little children, like primitive folk, conceive dreams as realities, and that they take reflections and shadows for persons. The essential difference is that the primitive peoples take reflections and shadows for souls, and dreams for experiences of the soul; this interpretation is beyond the small child. It does not so easily reach the stage of the primitive peoples; and it comes to skip this stage because adults explain the phenomena to it before it has time to arrive at the primitive interpretation by its own efforts.

For the development of the child's soul it is of the very highest importance that imagination should have opportunity to unfold itself freely in play and go through its transformations in a natural manner, as the child advances in maturity of mind. This, however, is often overlooked. Grundtvig built even his fundamental plan of education on the view that

imagination should be predominantly nourished on narrative, fairy-tales, stories. His password was: myth before sight, *i.e.* the living word before seeing and acting for oneself. But this is quite unpsychological. He overlooked the fact that the child has a powerful craving for action, and that its imagination is specially nourished and developed by play. It might be natural to think that the child's imagination is most healthily and powerfully developed if it is fed from an early age with tales of wonder and fantastic adventure. But this is a misunderstanding. In this field, too, the finished toy is less valuable than the bare stick. When the child's imagination is predominantly fed on tales, it is bound and prisoned within the limits of the tales. When it works independently, on the other hand, it is free to move, and it attains the farthest bounds possible for each particular child. To this may be added that the imaginary creations of the tales may easily persist and distort reality; and even if there is no harm in a child being a visionary, there is something wrong if it never ceases to be one. When the child itself romances with reality as a fulcrum, the wild leaps of imagination are at every turn held in check by the hard hand of the actual world. If the child forgets that a step is made of stone because for the moment it is being used as a pillow, that child is reminded of the reality if it comes to lay its head too vigorously on the eider-down. In this way the child's apprehension of reality becomes changed as the years pass. It becomes more and more objective. But that is not to say that the child's imagination has in the least degree had its wings clipped. It has merely changed

its nature. The adult, too, makes bread out of stones by the aid of imagination. The child takes a piece of paper and lets it be, that is, represent, an aeroplane; the adult who has enough imagination invents the aeroplane. Among adults it is not the visionary who has fruitful creative imagination. It is the observer, the researcher—those who probe into the joints of things and put their parts together again in new and surprising combination. Therefore we ought not to take the child away from its play with realities in order to fill it and fetter it with tales.

Of course children must hear stories and fairy-tales, but it should be with discretion. To begin with they are receptive only for stories in which they are themselves the central figures, and in which they can co-operate as authors. At three years of age R. was still particularly pleased with quite elementary stories about herself. She asked to be told about what we are going to do at Aunt L.'s; and the whole story consists in an account of what Aunt does and Uncle says, how R. behaves herself. It can hardly do her any harm to hear this kind of fairy-tale. On the other hand, one may fairly shrink from having to relate "Little Red Riding-Hood"; for what stuff it is! Even for a child it cannot be long before there are difficulties in the idea of making an old grandmother out of a wolf. Too much *fata Morgana* in childhood leads to the adult living his life in the barren desert.

Just as the child resembles the undeveloped adult in the matter of attributing souls to things, so it has this in common with him, that the content of its consciousness is essentially disordered and chaotic. When R. "telephones" she lets her tongue run on, in

such a way that there is hardly a correct word, let alone an intelligible sentence, in her conversation. One day when she was two years and eight months she wished to tell something she had experienced, and set off, full steam ahead, without it being possible to follow her meaning; all at once she suddenly stopped her narrative and said: "No, Mother, I can't." More particularly when playing she chatters at random about all possible occurrences jumbled together; and it is easy to hear how merely verbal similarities or coincidences of sound govern what she says, while logical thought is absent. These monologues are like those of certain mentally afflicted persons. R. often sings her incoherent prose, which well agrees with the view of song as intensified speech. One day, when about three years old, R. supplied confirmation of this view by singing repeatedly: "I am glad, I am glad."

Just as the child's freaks of imagination are not to be combated directly, so neither should we seek by direct action to bring its meaningless chattering or singing to an end. This behaviour characterises a stage of development, and in all normal children gradually disappears of itself. On the other hand, one may indirectly cut down meaningless chatter by talking rationally with the child, when it itself provides the occasion; and this happens every day. Children like to understand, and make great efforts to get really clear notions. When R. was two years and eight months she asked her mother: "Where is the earth, Mother?" The answer was given: "It's what you're walking on"; and thereupon R. began stamping, and said: "Is it what R.'s stamping on?" We notice the strong craving for concrete, palpable

illustrations. On occasion, a child may even give a definition in order to explain itself clearly. At three years and three months R. asked her mother for something to play top with. "What is it you want?" asked her mother, and R. answered: "A peg with a cord on it."

Before all else a child's innumerable questions offer the educator a favourable opportunity for influencing its thoughtfulness and so counteracting the chaotic play of its ideas. But we should not always answer the questions straight off. It is better if the child can be led by a little help to supply the answer for itself; it is a main task to education to make every person into an eager questioner and a competent self-answerer.

R.'s first question, as already stated, was asked when she was one year and ten months old; and after that her passion for interrogation, as in the case of other children, overflowed all bounds. But answers must be given, if only the child can be satisfied; and its thirst for knowledge is often quenched when one least expects it. This will appear from an account of some of R.'s questions. At two years old she asked: "Mustn't—*why* mustn't?" She wanted to go to the bookcases and rummage among the books. A month later she was riding in Frederiksberg Park and was given a small branch, which she called a whip. She looked up to the tree-top and said: "All whips." She then looked at the soil and asked: "Flowers gone?" (*i.e.* where are they gone?) At this age if any one came R. would ask: "Who is it?" If work was being done, she asked: "What is it the man's making?" From the middle of her third year

the impulse to ask questions was already overwhelming; and it might often be difficult to satisfy her. As an example may be taken the following dialogue occasioned by the picture of an old woman: "Why is she so old?"—"Because she is no longer young."—"Why is she no longer young?"—"Because she has lived so long."—"Why has she lived so long?"—"Because she isn't dead yet." That helped. The origin of many questions is not to be understood without reflection on what the child has lately seen. It is so in the case of the following conversation: R.'s mother said: "Shall we cut R.'s hair off?" "No, Mother, we won't do that, because then we shan't have anything to comb." R. then asked: "Will blood come when we take R.'s hair off?" "No, no, R." "But you mustn't cut R.'s legs off." The explanation of this uneasiness and of the question about bleeding is certainly to be found in the fact that on a walk during the Christmas holidays R. had seen venison hanging up in a game-dealer's shop; in any case, she had been much impressed by the sight of the blood under the broken legs of the deer. In her fourth year R. began of herself to put questions on the origin of things. In Frederiksberg Park she asked: "How do they put leaves on the trees in summer?" but shortly afterwards she answered for herself: "They come of themselves. The bouquets (flowers) come in summer, too." Two months later she asked: "How does the man make horses, Mother?" Another day: "How do pictures come in the newspaper?" At about three and a half she asked: "Have old women fathers?" meaning that if so the fathers must be *very* old. Later: "How do

they make men?" "Why do they make fingers?" Another day she said: "How is it I'm not a little girl and little sister a boy? How do they make boys?" We catch a glimpse of her thought that human beings are made, fashioned, just in the way she sees men and women made out of plasticine—a fine analogy to the creation-legends of primitive tribes and the old civilised races.

One of the conditions for the child being able to observe and think is that it must be able to remember. But experience shows also that the growth of memory keeps step with that of the powers of observation and thought.

When R. was just one year old she could remember the position of the bookcase. She was crawling towards the stove in one of the rooms, but was turned round; and then in great excitement she set about crawling straight for the bookshelves in the adjoining room, where she wanted to rummage among the books. At the age of about one and a half year she saw a pair of big dogs from the window of her grandmother's bedroom; and this she remembered a few days afterwards, for she came to the bedroom door, said *vov-vov*, and wanted to get into the bedroom. One day she got hold of an empty green box, in which she had been given chocolate a month before; she immediately said *mam-ma*, opened it, and looked for chocolate. On the other hand, she did not know the maid after a month and a half's absence, although she was very fond of her. Her memory was thus strongest in regard to chocolate—the eatable. When R. was two years old she began singing a song about a little goblin; she remembered the first line, and

with some help the remainder of the verse; but, as she did not understand the meaning, it was purely verbal memory. When she was two years and seven months old her aunt came on a visit from Russia, where she had gone half a year before; but though R. had often heard her aunt talked about and had talked about her herself, she did not recognise her in the least. Thus her memory did not as yet carry so far. At two years and ten months, one evening after her return from the country, R. said apropos of nothing: "Mother, I wanted to give the pigs plums." This referred to the fact that three weeks back in the country she had given plums to some pigs. A month later she saw, in a botany book which she never looked at before, the coloured picture of a burdock, and said immediately: "Look, Mother, it's a burdock." She had, however, neither seen a burdock nor heard the plant named since she was in the country, on 26th September at the latest. Her memory thus now carried over at least two months. At three years and two months she returned home after an absence of twenty-one days; as soon as she saw the coke-box, which was broken, she said: "I'd like to mend the coke-box. Will you get what's up in the bowl?" I had placed a handle and some other things in a bowl which was in a room where R. had not yet been, so that she could not possibly have seen either bowl or handle. More surprising, however, was the memory which she displayed at the age of three years and three and a half months. She suddenly said, without any observable cause: "E. was engaged, and she cried because she had said something wrong to grandfather." The reference was to an incident with a

maid who had told a lie four months and eighteen days before. At three years and five months, again without apparent motive, R. said to me: "In the summer we lived in a little house with Miss C.," and it was then eight months since we had taken leave of Miss C. and ten months since we had lived in the little house. One or two other experiences of her stay in the country were remembered still longer. When she was about three years and seven months we passed some haystacks, and R. said: "Those are what were at Miss C.'s"; but she could not have seen a haystack since she was in the country, nine months back, and she had neither heard haystacks spoken of nor seen pictures of them. Three weeks later, when she went into the water at Elsinore, she said: "It's like at Miss C.'s; but there were two bath-houses (here there is only one)"; and she had again seen neither bath-houses nor pictures of them since she was in the country the year before.

But how is a child's memory to be educated so that it may become as good as natural endowment will permit? Not by direct memory-exercises; a little child of the age here treated of cannot endure that; but by giving the child opportunity to observe and use its senses with full attention. Under otherwise similar conditions, that thing is best remembered which is perceived with the keenest attention; but of course the quality of the brain-cells and their freshness at the moment are also of importance apart from the attention. Some persons are very attentive observers, and yet quickly forget; others have very desultory attention, while their experiences remain fixed in their brain. But it is always profitable for

memory that one should be attentive; and therefore a little child should not be enticed or forced away from what has caught its attention, unless this course is absolutely necessary; and if a child is content to nibble at the surface, one may endeavour to fix its attention by pointing to some new feature or other in the thing being observed. The child should be accustomed to dwell on its impressions.

XIV

THE EMOTIONS

AFTER the child's first year its emotions also exhibit a rich growth.

When in her second year, R. did not yet show *fear* in the dark. She was laid down in a dark room without a whimper, and she moved about a dark passage without any uneasiness. One day, shortly before she was two, she was out driving with her mother; and when they came to a barrier behind which was a locomotive with steam issuing from the chimney, she was frightened. She became red in the face, raised herself a little in the seat, and said: "More drive," *i.e.* let us at all costs drive away from here. Her mother said, "You mustn't be afraid," and that calmed her. Afterwards they came to the barrier again, and a train passed. R. said: "R. afraid"; but when another train passed she only said, "Train." On that day R. had both showed her immediate, inborn fear, for she could not possibly have had any experience of the danger of trains, and had learnt from experience the lesson that one may safely remain outside the barriers. As a rule she was not afraid of dogs; on the other hand, she showed anxiety on seeing bisons in the Zoological Garden,

though she called them *vov-vov*. When there was a little noise in the floor above us she said: "R. afraid." R. is also timid about sea-bathing, but not more so than to show a little uneasiness up to the moment when she is put into the water. She then shivers for a second and is afterwards calm. Possibly, however, this fear is a pure reflex. Now in her fourth year she says, on coming out of the water: "How lovely it was!"; but this may be merely a phrase which she has heard and repeats without meaning it. As the years pass, children often show fear of being in the dark, although no one has frightened them or even indirectly strengthened their uneasiness. It is certainly the fault of dreams. The child is perturbed by the forms which it "sees" in dreams, wakes in the dark room, and cannot free itself from the dream-image. The best way to help children is therefore to strike a light, ask what is the matter, and point out that nothing is the matter. When R. was about three years old she was frightened when an alarm-clock, which she had never heard before, suddenly went off. She cried violently. But when a light was made, and she could see the alarm-clock and was allowed to make it go off, her fright disappeared, and she quietly submitted to having the light extinguished. All she said was: "The little clock must not say that, because then R. will be sorry." In the time which followed she was not frightened when the clock occasionally went off.

In addition to instinctive, innate fear there is also developed a fear based on experience, inasmuch as the child having once been hurt, say by a dog, afterwards fears being hurt in the same way. But there

is an enormous difference between children with regard to the strength of their timorous feelings.

Anger in the child is known to every one; for the child, like the "savage," is incapable of curbing and regulating its nature. It yields to the impulse of the moment. Hence children, too, often display anger. With increasing intelligence and with education—by becoming civilised—the child fares as the races of mankind; it learns to veil its feelings, and it accustoms itself to reflect before allowing the waves of passion to roll.

Sympathetic feelings — friendliness, affection — naturally acquire more palpable means of expression than can be employed by the quite young infant, which is only able to smile and stretch its hands out. R. displayed sympathy when she was two years and two months old. When she was three years and four months old I was ill one day and vomited. That made a very strong impression on her. She cried and wished to go into another room; when she came back she was much concerned on my account. But the child's sympathetic feelings have their root in its egoism. The child loves the person who helps it. One day when R. was asked: "Why do you like Father?" she said: "Because he can draw me pictures." That was the answer for the moment. Another time the child might answer analogously: "Because Mother gives me food," and so on. The conflict between immediate egoism and affection based on egoism may at times be very comic. One day when R. was three and a half she received a few sweets from her grandmother, who said: "Now you can take that, and then you'll have three. Then we'll

FIG. 4.—R. interrupted in her work (age 3½ years).

put two away for Mother, and then there'll be one for me." R. walked very thoughtfully up and down the road, then went to her grandmother, and said: "Mother shall have a sweet; but you—you can go in a shop in —— Street; you can buy sweets there. Please may I have a sweet?" She had found a way out of the difficulty. A two-year-old girl showed friendliness to her little sister in the following way. She bit off half of a piece of chocolate and packed up the remainder for "little sister"; but a moment after she again bit off a piece from the part she had packed up, and laid up the diminished residue for little sister, and so she went on till the fight between generosity and egoism ended in there being nothing whatever for little sister.

The child also shows sympathy towards animals, though in a much lower degree than towards human beings. It has already been related how friendly R. was to a little dog when she was two years and one month old. During her stay in the country, at two and a half years, she saw a toad for the first time. This interested her greatly, and she said: "It's really sweet." When we had gone away from it she asked to see it again, and we turned round. The toad evidently had no repellent effect on her, but aroused her sympathy. Later, she saw a black wood-snail, which she looked at with much curiosity. She said: "It's pretty," and was so taken up with it that we went back to it three times before she had looked her full. Children are especially interested in the young of animals. When R. was in the Zoological Garden at about three years and three months, she was a little uneasy about the elephants, but she was greatly

taken up with little Julius. She said eagerly: "There is an elephant that has a little elephant (Julius)," and "There is an elephant that hasn't got a little elephant"; this was the male, Chang. The monkeys interested her highly on this occasion, and she called the chimpanzees "old women." When she was in the woods at three years and seven months, she saw a snake for the first time, and said: "How sweet it is!" Thus she felt as little loathing for it as for the toad. One is inclined to suspect that the feeling of loathing for animals is often secondhand.

Children's interest in animals is, however, not exclusively based on direct sympathetic feeling, which may well have its root in the fact that they are alive and manifest life as does the child. Often the interest has also an æsthetic motive. Children like beautiful animals—those, be it noted, which satisfy children's ideas of beauty, as animals with bright colours, conspicuous decorations, and so forth. When R. was in the Zoological Garden at the age of about three years and four months, she was particularly fascinated by the tigers, the golden pheasants: "Look, how fine he is!" the monkeys, the giraffes, the swimming-birds—as well as by hens, pigeons, and wolves, all of which are old acquaintances. After digging for half an hour she asked to see the giraffes again.

The interest in flowers, on the other hand, is predominantly based on an æsthetic foundation. An example, however, is probably to be found in the Christmas tree, that is, the fir, which is R.'s favourite plant. This *may* possibly be also an outcome of æsthetic feeling (the Christmas tree with candles),

but also it may be more material motives that come into play. R.'s interest in the Christmas tree was so great that she also called her second favourite flower, the dandelion, by the name "Christmas tree." Her preference for dandelions, on the other hand, cannot possibly be founded on anything else than its bright yellow colour, and perhaps, too, its easiness to pick, as it not only is common but also has a brittle stem. When R. plucked flowers at the age of two and a half years, she generally plucked only dandelions, but sometimes also daisies and red clover. These were the flowers she had names for. She picked only the inflorescence, whence it may safely be concluded that it was the colours that roused her interest. In the following spring, being now three and a half, she again picked "Christmas trees," that is, dandelions, with the greatest eagerness; and it was long before she accustomed herself to call them by their right name. In addition, her interest was roused in buttercups and daisies. Later, her interest was extended, especially when she began to learn colours; she then came of herself with flowers and asked their name and colour, *e.g.* speedwell, crane's bill, dead nettle, and so on.

Jealousy, as already mentioned, is early displayed by the child, which is egotistic in high degree; in R. it appeared at least as soon as she had got a little sister. To begin with, she was busy with her in a benevolent way—examined her closely, said: "How sweet she is! Where's her thumb gone? Oh, it's there," and so forth. But when the grandmother, S. being now a month old, got up from her chair to look down in the cradle, and said that she looked quaint,

R. went to the cradle, looked down at S., and said: "I don't think she does look so quaint." When R. was three years and three months old, some one said of her little sister: "She is sweet," but R. corrected that and said: "Yes, she is sweet like R." A month later, the little sister had come to lie for a moment by my side; when R. saw that she became very jealous, and wanted to lie where S. lay, "on top of her." A few days later when it was said of S.'s feet: "Look at the pretty little feet," R. said: "Yes, but mine are better." A few days afterwards I said purposely in R.'s hearing: "Little S. has lovely hair." R. took it, however, very coolly, and said: "Yes, she's like a carpenter boy," meaning that S.'s hair was like her own, she being sometimes called a carpenter boy because of the boy-like cut of her hair. R. does not take it well when any one pays special attention to her little sister. When she was about three years and four months old, her mother, who was carrying S., said: "See what I have here," but R. snapped: "Oh!—I've seen her before." But when R.'s jealousy is not excited she is extremely sweet and friendly to her little sister. S. is not at all in R.'s way.

The child, being so much occupied with itself, is naturally in high degree susceptible to *flattery*; it is often a very difficult task for parents to see that others, by thoughtless and purely conventional flattery, do not rouse an extremely undesirable craving in children. They react instantly, and—fortunately—cannot hide how flattered they feel. R. showed this particularly on her second birthday, when there were strangers in. She was the centre. Without any one being at the time able to guess the reason, she said

twice over, in a miserable voice: "Pip is dead." This amused the company; and she then repeated the words: "Pip is dead," several times over, with a mournful manner and varied voice, greatly enjoying the amusement she gave and the attention of which she was the object. When she was in the country at two and a half years, and one evening during a thunderstorm came into a room where many people were assembled, and when she there became the object of attention and conversation she was talkative, loud-voiced, important, in consequence of feeling flattered.

A feeling closely connected with joy in attention and flattery is joy in *finery*, for this of course rouses attention; and the child early has a sense of finery, even though good care is taken that this sense shall not be too strongly developed. R. displayed this feeling, quite spontaneously, when she was two years and two months old. She found a hank of tinsel thread in a drawer, tied it round her waist, and said: "R. fine." Indirectly she shows her interest in finery by the way she decks her dolls. But her æsthetic sense is different from that of the adult; the finery must either shine like tinsel or glow with bright colours; it is, on the other hand, of minor importance whether it is an "ugly" rag or a really "pretty" dress that is put on the doll. When about three and a half she had noticed that grown-ups put flowers in their buttonholes; therefore she, too, must have one affixed. But she chose for the purpose a roadside willow-weed—one of the most insignificant and undecorative flowers to be found. All the same R. was bedecked and "fine." One day she had a clean dress

on, and was then to have an apron over it, but she said: "No, I won't have an apron on—because then the ladies can't see how fine I am."

An effect of interest in finery, or possibly of a purer æsthetic sense, appeared in R. when she was about two years old. A very light-yellow silk cushion with embroidery of gold thread and red silk had been placed on a sofa; and though R. was otherwise unwilling to sleep she often lay on the sofa with her head on the cushion, turning herself over now and again to look at it. Most probably her interest in the cushion had a purely æsthetic motive. The sense of cleanliness, which in a little child is purely æsthetic and not connected with any hygienic notions, first appeared plainly in R. when she was a year and a half old. She got a little earth on one hand, held it out, and said *uf*, much upset. Later, however, she has reconciled herself to having dirt on her fingers; for if she is out without her spade she says: "I can dig with my hands," and sets to work on the dirtiest spot she can find. Her sense of the æsthetic element in plants and animals has already been mentioned. For nature as a whole she has never displayed the least interest whatever of an æsthetic character.

The *dramatic* powers of the child may at need be considered in connection with its emotions. Dramatic talent is developed very early. It has already been related how R., then just two, made herself noticed by repeating the speech: "Pip is dead." This amused her for several days, and she said the words with the deepest pathos like a wailing-woman. She bowed her head, drew up her eyebrows, half closed her eyes, and spoke with a lugubrious, subdued voice. At

three years and four months she was on a visit to her grandmother, who some time back had given her a few coloured chalks which she called pencils. When the grandmother asked about the coloured pencils, R. went out into the middle of the floor, spread out her hands theatrically, and said: "Yes, pencils! Crack! Bang! They are gone into many pieces." The last words were said in an exceedingly roguish tone. When she was about three and a half a doll of hers was broken. She stood looking at it for a moment and said: "Glass pieces—here is the eye." Another day at about the same time she was again visiting her grandmother. The latter was talking with a strange lady about R., and said: "If only she'll be pleasant and not answer every question with 'Very well, very well.'" R. heard this, and said: "Who is it you say says that, 'Very well, very well'?" and copied her grandmother brilliantly. A little afterwards, her grandmother suggested that she should play that she was her doll's mother and that her name was Mrs. Madsen. On receiving this suggestion she stroked first one cheek and then the other with one hand, and said: "There, now I'm Mrs. Madsen," and began the game. She literally rubbed off the R. from herself and transformed her ego. One evening after going to bed she copied her little sister. She lay on her stomach and said: "Now I'm lying on the table like little sister (when being seen to)," and then she nodded with her head in lifelike imitation of her little sister, who could not yet hold her neck stiff. For the rest, the child is a highly dramatic agent in its games, representing now one and now another person.

Because of the child's inborn dramatic talent it is not seldom necessary to be very cautious in respect to the feelings which they display. These are not always genuine. The child is very early capable of ingratiating itself and disguising its emotions for the sake of obtaining an advantage. One day when R. was two years old she had been pettish, and had been told that she wasn't Father's girl; thereupon she turned round to me and said: "*Da Far*," i.e., "Good day, Father"; later she said: "Stop for shame," *i.e.*, "Stop saying 'for shame' to me." Two months later she said: "R. not like Mother," or "R. not like Father," looking very serious. A little after, she said: "Yes, R. like Mother."

The feelings, moreover, genuine as well as feigned, are difficult to observe. It is only in tense situations that the emotions manifest themselves visibly.

Among the expressions of the emotional life it is interesting to observe the child's feeling for pictures and its own drawings and paintings.

Among pictures it is the coloured ones which first catch a child's attention. R. was one year and three weeks old when she showed the first sign of being impressed by a picture. It was a coloured reproduction of *Les Glaneuses*, which she saw at her grandmother's. Gradually and of her own accord she also came to look at uncoloured pictures, but always in a quite different way from grown-up people. A little child sees only the separate elements in a picture, *e.g.* man, woman, boy, girl, horse, chair, bed, and so on, but not what the persons are doing nor the qualities of the things. On the other hand, little children put life into pictures, or take them for living

FIG. 5.—A picture of health.

beings. When R. was about three and a half she saw in *Andersen's Fairy Tales* a picture of a man with his head held fast between iron bars, and said: "Mother, will you take it out?" One day I saw a three-year-old girl go up to a coloured drawing of a pierrot and feel it very carefully, after which she tried to take the pierrot by the hand. She took him for alive.

Children are, however, much more interested in watching pictures being drawn or painted than they are in viewing the completed "works of art." When R. was a year and a half she became highly excited when some one drew for her, but it was certainly the saying what animal was going to be drawn more than the picture itself that affected her so strongly. She herself began to draw as soon as she saw my drawing, but, like all children at that age, she could only produce random strokes. Still, her drawing represented something—dog, cat, horse, and so on. When she was quite two her drawings were purely arbitrary scrawlings. When she was two years and two months old her drawings began to have some resemblance to the reality. She made a ring in the head of "a girl" and said: "Eye." Her girls now had also bodies and legs. Unfortunately, I have no samples of her very first intelligible drawings; but when she was three years and three months old she drew a flower and a fish which were quite recognisable. They were, of course, "memory-pictures" of the reality. She remembered the flower-pot with something in it and the long body of the fish. In the same way all her drawings were diagrammatic memory-pictures; and while she drew she announced aloud: head, eyes,

nose, etc., if drawing persons. But she gradually remembered more and more; and when she was three and a half she could draw "a man" or "a lady" with something approaching likeness to the respective figures.

XV

MORALS

IN point of disposition, the child does not make much progress in *morals* from the first to the fourth year, but in the acquisition of moral habits it does.

R., for her part, has quite often shown that right up to the close of her fourth year she had no proper understanding of what is wrong, and that she lacked a really moral disposition. It is true that she could say: "Beg pardon," when she was only two years and two months old; but that did not really mean anything. One day she said: "R. not tear Father's book"; on which I remarked: "No, because then R. gets a smacking." Thereupon she said: "Not smack, Father—beg pardon, Father." Thus she seems to have understood "Beg pardon" as exempting one from further proceedings at serious moments. But at three years and three months she betrayed that she did not understand what is meant by not having to transgress a prohibition. Her mother said to her on some ground or other: "You mustn't do that," and R. remarked, very obligingly: "But you can go into the bedroom. Then I can do it." If only she could get the punishing authority removed, there was no obstacle in the way of doing the forbidden thing.

On the day after, when she was busy "dusting" with a wet cloth, her mother came and saw her and said: "You mustn't do that," after which the mother went into another room. A little after, when she came back to where R. was, the latter said: "Now you're there again. Go into the other room," and went on with her dusting till it was interrupted. Another day she had put one of her little sister's teats in her mouth; and when the maid said: "For shame! You mustn't suck little sister's teat," R. answered: "Yes, but that's just why I've gone into the green room." When R. was a month older she was sitting up in bed, playing. I came and said that she was to lie down, and gave her a determined look. A little after she raised herself a trifle, and said to her mother: "Do you think Father can see when I lift myself so much, because I can't bear to see Father look so?" Eight days later she was in something of a temper and struck some one and said: "For shame!" But on the moment she became thoughtful and said: "I said that to myself." Perhaps a grain of moral progress; more likely fear that punishment was too near at hand. At three years and four months there were clearer signs of progress. She had been disobedient; in spite of being forbidden, she had meddled with her little sister's bottles, and had knocked down one of them, which went to pieces. I scolded her, set her on the floor, and looked very serious. When some time had gone, she came up to me, ingratiated herself, and begged pardon; when I then gave her a friendly look, she said joyfully: "Father's laughing again." On the same day R. was in Frederiksberg Park and went inside one of the enclosures. She was told that

one must not go in there ; but she remarked in answer: "Yes, but I can go in there till a man comes and says I mustn't." Here, too, she betrayed the fact that it was only the punishment she was afraid of, which in this case she imagined would come from the park-keeper. What has most effect on her is refusing to look at her. Once when she was three and a half and had been disobedient, her mother would not look at her, and pretended not to notice her. This was more than R. could stand ; she came and said: "Beg pardon, Mother—so you shan't do that," and therewith she looked straight in front of her with an expression like her mother's. A real growth in comprehension had, however, set in when R. was three years and seven months old. She had again been naughty and had been corrected, upon which she came and said: "I won't do it any more." This form of apology is at any rate better and more direct than "Beg pardon," the meaning of which she did not yet rightly understand.

On the other hand, as one often has occasion to observe, the child is excessively moral on behalf of others. When R. was two years and ten months old, she went round with her doll one day and let it touch my books. Each time she rapped its fingers and said: "For shame! Dolly, you mustn't touch Father's books." When she was three years and three months old I told her the tale of the Little Girl with the Matches; when I related how the girl struck a match, R. said: "I won't hear any more about that girl, because she's naughty." I had to explain to her why the little girl struck matches.

The main ground of the child's inability to show a

really moral disposition is, as already mentioned, that at the outset it feels itself as the world's centre; and in this respect no far-reaching change takes place during the first four years. When R. was in the country, at the age of two years and eight months, what she saw was all of it hers. For example, some ships lay off the coast; she pointed to one and said: "R.'s ship." Then she pointed again and said: "R.'s ships." So it went on continually. It was only when she was told: "That's the man's," or: "That's Miss C.'s," that she ceased to maintain her right of ownership.

In agreement with this feeling of being the centre, the child is a "collector" like human beings at the earliest stages of civilisation. All that R. finds she regards as her rightful property; and on her walks she picks up sticks, pieces of paper, rags, etc., to take home for use in her games.

As the child cannot *understand* the grounds of morality, one cannot as a rule "appeal to its reason" as a means of moral training, but must rely on its respect for authority, its faculty of imitation, its proneness to form habits. But these are trustworthy aids in the practice of moral education. There is no lack of respect for authority unless one undermines it oneself by inconsistency or indecision. When R. was two and a half she never said: "May I do so-and-so?" but: "Do you mind if I do so-and-so?" —a direct acknowledgment of parental authority. Imitation cannot be suppressed even by gross errors of education; in any case, not while children are—children. They imitate parents and others around them both in bad and in good. When R. was one

year old she set to work in real earnest imitating everything she saw, the whole day long. If an envelope was wetted with the tongue she began licking in the air so as to wet "something" too. If a nose was blown, she had to borrow a handkerchief and trumpet with all her might. When she was one year and eight months old I opened a drawer with a key; immediately she took a peg and pushed it into a keyhole, so that she, too, might do some opening. When I wrote, R. "drew." She even imitated facial expressions. When she was two years old I one day cracked a walnut for her, and put on a strained expression as one naturally does when it is difficult to get a walnut cracked. R. looked at me, and her expression was as if she were severely exerting herself. One day when she was about three years old I had a bad cold and coughed twice; R. also coughed twice. When she was about three and a half her mother went one day behind a wall because a motor whizzing past was raising a cloud of dust in the road. When, some way on, we came to another wall with a bend in it, R. went into the bend, placed a hand over her eyes, and said: "I won't have dust in my eyes either." But no motor was approaching, so that the imitation was quite external and motiveless.

If children are ready to imitate, they are also ready to fix their experiences in the form of habits.

Educators train little children in habits before they can as yet understand anything of what is said to them. This applies, *e.g.*, to the habit of cleanliness. It is therefore of great importance that one should not make a display of goodwill towards children who

are forming bad habits. When R., at the age of one and a half, was in the country during the summer holidays, an "amiable" gentleman one day gave her cherries, picked by himself from some trees which she had discovered. After that, she was every moment sneaking round by a long circuit to get among the trees and take cherries. Even if one followed close behind her, she took cherries when she reached the trees. Thus it became unfortunately necessary to give her a few raps over the fingers to wean her out of taking fruit. So gradually she gave it up when there was any one behind her, and contented herself with pointing at the cherries and saying *mam-ma*; but as soon as she thought herself unnoticed she sneaked off to the cherry trees. A good thing, cherries, had in a moment created in her an unfortunate habit; and only fear withheld her from appropriating the object of desire. Even the things which are most insignificant, seen with the eye of the adult, may possess a value for the child in that they develop habits. When R. was well over two years, I had for some time made a practice of tapping her feet with my stick when she came out on the stairs to wave me good-bye. One day, however, I omitted to do so, and she said: "Will you do that with the stick, Father?" pointing to her feet. Some time later she asked to have sandals instead of slippers, which she had on, and gave as a reason: "We only use the slippers in the morning." When she came home from walks she wished me to let myself in at the door first, after which she rang and was admitted—merely because she had once been allowed to ring in that way. One day when we were in the churchyard she

and I had walked each on a different side of a path; when we came to the same path a month afterwards, she went over to one side and said: "You must walk there on that side"; and so it was afterwards each time we visited the place. At the age of three and a half she had a spell of poor appetite, and was one day allowed to spin round once between each two mouthfuls of stewed fruit. That helped marvellously, for the whole portion was consumed; but a few days later, after eating a very little, said: "We shall have to spin round for the stewed fruit." Without that it would no longer go down. Thus the veriest trifle may be turned into a nuisance. One day I had played ball with R., and to amuse her had stamped gently on the floor now and again when I threw the ball. Playing at ball, by the way, is an excellent means of training a child's attention. But one day when I omitted to stamp, R. said: "Won't you stamp then?" and to make her meaning clear stamped a couple of times on the floor. A month later she was out for a walk with her grandmother, who for some days had used a toy bucket for a footstool when there was no footboard to the bench she sat on. One fine day, however, R.'s grandmother took the bucket and used it for a footstool, although the bench had a footboard; but R. took away the "footstool," and said: "When there's a board like that for your feet you don't need a footstool."

It is this ease with which acts become habits that must be utilised in the child's moral education, together with its recognition of parental authority, and its imitativeness. These conditions have the consequence that the parents are always taken as models

and serve as such both for good and for evil. They have the further consequence that parents, if only they have the necessary firmness and uniformity in their injunctions and prohibitions, can as a rule without any great difficulty train the child to be as they themselves think it ought to be—that is to say, "moral." But this does not, of course, exclude the utility of now and again addressing oneself to the child's reason and making it intelligible why a particular action is reprehensible, permissible, or admirable.

Although at the close of the fourth year the child is not very far advanced in moral behaviour, it is yet a long way ahead of the young infant, which with unlimited egoism satisfies every impulse as it emerges. In regard to thought, observation, emotion, and strength of will, the child is also extraordinarily in advance of the newborn. But all progress is due to a development. Man is not born with a soul, as was formerly thought; he becomes endowed with soul little by little; and with all the progress of the first four years the child is still only at the beginning of its soul's development. But the more one guides oneself in one's work of educating by the child's course of development as determined by nature, the better does one help it towards the highest possible unfolding of its valuable innate possibilities.

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